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ELECTORAL STRATEGY UNDER OPEN-LIST PROPORTIONAL REPRESENTATION

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Imagine an electoral system whose chief attributes include open-list proportional representation, large multimember districts, candidate selection at the level of politically significant subnational units, and the possibility ofimmediate reelection. How would il work? What **kinds of** spatial distributions of voting support would result? Where would deputies campaign? How would the system evolve? How would parties be affected?

I explore these questions with data from four Brazilian legislative elections between 1978 and 1990. The paper begins by characterizing vote distributions along two spatial dimensions: dominance and concentration. I then develop a formal theory of Brazilian politics. I evaluate the theory with logistic models predicting where deputies will offer budgetary amendments benefitting particular municipalities. **The results demonstrate that** deputies seek secure bailiwicks, search for vulnerable municipalities, and strive to overcome their own electoral weakness through "wheeling and dealing." The tactics of vote-maximizing candidates vary, in part because political backgrounds differ and in part because the differing demographic and economic contexts of Brazilian states reward some tactics and penalize others.

Brazil's states support distinct patterns of vote distribution. Successful deputies in the "clientelistic" Northeast typically dominate, getting high proportions of the overall vote in the municipalities where they campaign, while deputies in the more developed states face much more competition from candidates of **other** partics. **Successful deputies in more developed areas** concentrate their votes in informal "balliwicks," i.e., in contiguous municipalities. They focus on providing local benefits, but because they are unable to satisfy voters, turnover among deputies in more developed regions is nearly twice the rate of the Northeast.

The paper focuses, of course, on the substantive and methodological implications of the Brazilian electoral system, but the questions treated here are also the subject of current debate in **Brazil.** I conclude by discussing the effects of candidatc behavior on the principal-agent tie between voters and deputies, on the incentives for pork seeking, and weakness of party programs and discipline. My findings are certainly relevant to current Brazilian debates over electoral reforms, especially over the adoption of mixed voting systems (such as the German system), which have been the subject of some discussion.

ABSTRACT

Imagine an electoral system based upon open-list proportional representation, large multimember districts, candidate selection at the level of politically significant subnational units, and no limits to reelection. What would be the nature of constituencies? How would votes distribute spatially? What would determine campaign strategies?

Scholars have undertaken little research on the strategic behavior of politicians under these rules. This paper explores spatial strategies by analyzing results from four Brazilian legislative elections between 1978 and 1990. I begin by characterizing vote distributions along two spatial dimensions: dominance and concentration. I then develop a theory of campaign strategy based on the nature of open-list PR and on the realities of Brazilian politics. The theory of strategy is evaluated with Poisson models predicting where deputies will offer budgetary amendments benefitting particular municipalities. The actual electoral outcomes of strategic behavior are then evaluated with ordinary least-squares regressions. The results demonstrate that deputies seek secure bailiwicks, search for vulnerable municipalities, and strive to overcome their own electoral weakness by delivering pork. Candidates' tactics vary, partly because political backgrounds differ and partly because the differing demographic and economic contexts of Brazilian states reward some tactics and penalize others.

The argument reported here has implications both for the Brazilian case and for other newly democratizing nations. I conclude, therefore, by assessing the importance of these findings for future research on pork-barrel politics, legislative behavior and electoral reform both in Brazil and in other electoral systems.

Latin America in the mid-l 990s is a region of optimism. Ffedgfing democracies are surviving; economies are stabilizing and growing. But Brazil, the region's largest nation, remains an enigma. While prices rise 30% per month and the distribution of income deteriorates, political scandals rock the Congress, and unprecedented corruption led to the removal the nation's first popularly elected- President in thirty years.

Increasingly, observers blame Brazil's political institutions. Why arc political structures so ineffectual? Consider the party system and the legislature. Even by Latin American standards, Brazil's party system is weak (Mainwaring and Scully, 1992). Few parties have genuine roots in society. Party vote shares are volatile over time and between presidential and legislative elections. In the Congress, party leaders exert little control over their delegations. Many, if not most, deputies spend the bulk of their time arranging jobs and pork-barrel projects for their constituents. Though electorally successful parties fall all across the ideological spectrum, some of the largest "center" parties are really just shells for deputies with no policy interests at all. Few Brazilian parties organize around national-level questions; the Congress, as a result, seldom grapples with serious social and economic issues.

Brazil's presidents benefit little from the weakness of the Congress. With only minimal chances to obtain stable legislative support, executives face politically independent governors, an electoral calendar imposing elections in three of every five years, municipalities -depending for their very survival on federal largesse, and a substantial core of deputies caring about their personal incomes first, reelection second, and public policy a distant third. Presidents govern by forming coalitions based upon cabinet appointments. Because these appointments must satisfy the demands of both party and regional forces, cabinets tend to very inclusive. The pork-barrel programs required to maintain them are costly, and policy innovation is extremely difficult.

At the core of Brazil's institutional crisis is the electoral system. A unique set of rules, usually referred to as "open-list proportional representation," governs legislative elections. Political scientists have explored Brazil's version of open-list PR (De Souza and Lamounier, 1992; Fleischer, 1973, 1976, 1977; Kinzo, 1987, Lima Junior, 1991; Mainwaring, 1993), but the absence of appropriate data has limited research both in scope and breadth. Formal theories of voting, theories that have been enormously useful in understanding plurality systems like that of the U.S., have had little to say about multicandidate PR settings, except to note the absence of incentives for candidates to move toward the center (Cox, 1990).

In sum, the consolidation of democracy in Brazil may well depend on our understanding of the relationship between institutional structures, especially the

electoral system, and the problems of the leyislature and the executive. Although political scientists have made some good beginnings in investigating these structures, we remain a long way from comprehending the operation of this system or of any potential reform.

This paper, representing one portion of a broader research program, explores elections for the Chamber of Deputies. I focus on the consequences of Brazil's version of open-list proportional representation for individual campaign strategies and for the types of deputies winning legislative seats, and I explore the ways in which campaign strategies operate in states with differing social and economic characteristics. The exposition begins with a sketch of the Brazilian electoral system. I then offer a theory explaining. the strategies adopted by individual Chamber candidates. The theory derives from the notions of strategy developed in the social choice literature, but I have adapted these ideas to Brazil's political and social context. A test of this theory requires a measure of deputies' *intentions.* Since the ultimate outcomes of any election represent the *consequences* of intersecting strategies, the votes deputies receive cannot measure their intentions. Instead, I utilize the budgetary amendments deputies submit to benefit localities where they seek to reward old allies and recruit new supporters. Thus the empirical analysis begins with a model predicting the chance that a given deputy will offer a budgetary amendment benefitting a particular municipality. I then test the efficacy of candidate strategies by modeling individual deputies' vote totals in the most recent legislative election.

Part I: The Brazilian Electoral System.

In elections for Brazil's Chamber of Deputies, each state is a single, at-large, multimember district. The number of seats per state ranges from 8 to 70, with overrepresentation of lightly populated states and underrepresentation of heavily populated states, principally São Paulo. Electoral laws allow unlimited reelection, and parties cannot refuse renomination to incumbents. Voters cast single ballots either for the party label -- in which case their vote merely adds to the party's total -- or for individual candidates. Most opt for individuals. Candidate names appear nowhere on the ballot; rather, the voter must write in the candidate's name or code. The D'Hondt method determines how many seats each party earns; the individual ordering of votes then establishes which candidates receive those seats. [1]

Other polities, including Finland and pre-1973 Chile, have used open-list proportional representation, but Brazil's version differs in two ways: in Brazil state parties, not national parties, select legislative candidates, and the voting district (the

[1] In elections held before 1994, parties faced no minimum threshold for attaining seats in the legislature. In 1993, Congress approved a 3% threshold, but a loophole in the law will minimize its effects.

state) is an important political arena in its own right. In some states, powerful governors control nominations and direct campaigns; in others local leaders deliver blocs of votes to deal-making candidates; in still others neither governors nor local bosses have much influence over individual votes.

Brazilian electoral law affects campaign. strategies both restrictively and permissively. Candidates may not, for example, buy advertisements on either radio or television. Practically everyone advertises in newspapers, but print ads have little impact. Candidates erect billboards and paint signs on walls, but they generally do so in conjunction with other campaign efforts, such as participating in rallies or offering public works to local leaders. The permissiveness of spending laws allows candidates for the federal legislature to finance the campaigns of state assembly candidates in exchange for electoral support. Because state assembly districts are also whole states, elected at large, politicians often engage in *dobradinhas*, or double-ups, in which federal legislative candidates pay for the campaign literature of assembly candidates whose bases of support may lie far away. The assembly candidates reciprocate by instructing their supporters to support their benefactor for the national legislature. Such deals are hardly conducive, of course, to accountability.

A Taxonomy of Spatial Patterns

Legally, candidates collect votes everywhere in their states, but in reality most limit their campaigns geographically. Does the electoral support of legislative candidates fall into discrete spatial patterns? Since each state is a single at-large electoral district, any taxonomy of spatial support should characterize voting patterns in terms of candidate performance in the whole state. But individual results vary markedly across municipalities, so a taxonomy should be based on electoral results in the particular municipalities furnishing the bulk of a candidate's support.

Spatial patterns at the state level have two dimensions, each based on *municipal* performance. Suppose, for every candidate in each municipality, we calculate V_{ix}, candidate i's share of all the votes cast in municipality x. We define each candidate's *municipal dominance* as the candidate's share of the total votes cast for members of all parties. These shares represent the candidates' dominance at the municipal level.[2] Now suppose we use V_{ix} to calculate D_i, the average dominance for each candidate across all the state's municipalities, *weighted by the percentage of the candidate's total vote each municipality contributes*. Candidates with higher weighted averages tend to "dominate" their key municipalities; those with lower weighted averages "share" their key municipalities with other candidates. Thus "dominance-sharedness"

[2] Note that municipal dominance has nothing to do with actually winning a seat; whole states, not municipalities, are electoral districts. I have also experimented with conceptualizing dominance solely in terms of votes for candidates of the candidates' own party.

is the first dimension of spatial support.

The second dimension also begins with V_{ix}, candidate *i*'s share of the total vote cast in each municipality, but this dimension assesses the *spatial* distribution of those municipalities where the candidate does well. These municipalities can be concentrated, as close or contiguous neighbors, or they can be scattered.[3] Combining the two dimensions yields four spatial patterns:

Concenfrated-dominated municipalities. This is the classic Brazilian "*reduto*" (literally, "electoral fortress" or bailiwick), where a deputy dominates a group of contiguous municipalities. Why such domination? Candidates' families have traditions of power in the region; party leaders sent the.candidates to the region; they climbed the ladder of politics from local jobs; they struck deals with local bosses. Whatever the roots of local dominance, other aspirants from the same party, and other parties as well, avoid that fortress. Figure 1, which maps the vote of Laire Rosado Maia, illustrates extreme concentration. Rosado Maia received nearly all his votes in the "elephant's trunk," the northwest corner of Rio Grande do Norte. Note that in the counties where Rosado Maia received votes, he averaged at least 50% of all the votes cast. Maias have long controlled the northwest -- one country even carries the family name. So not only does Rosado Maia get all his votes in this region, no other candidate of any party; dares compete in his impermeable *reduto*.

(Figure 1 about here)

Concentrated-shared municipalities. Some candidates specialize in voters concentrated in contiguous municipalities. In heavily industrialized areas such as greater São Paulo, workers' votes elect many candidates. Figure 2 represents Eduardo Jorge, a candidate of the Workers' Party in the state of São Paulo. More than three-fourths of his total state-wide vote came from one municipality, the city of São Paulo, but in no county did Eduardo Jorge get more than 5% of the votes cast, because he shares these counties with many other candidates (including other *PTistas*).

(Figure 2 about here)

Scattered-shared municipalities. Some candidates appeal to voters providing support that is near-unanimous but, in any single municipality, numerically weak. Two

[3] Some early readers suggested that "contiguity" would be a better label than "concentration" for the second dimension. Although contiguity underscores the underlying meaning of the concept better than concentration, I think concentration is a bit more general. In some places municipalities can be very close without actually touching. Moreover, the statistical measure utilize, Moran's I, uses the actual distance between counties rather than their contiguity. Given the irregular shapes nf Brazilian municipalities, actual distances are more appropriate.

FIGURE 1: VOTE DISTRIBUTION FOR A TRADITIONAL REGIONAL POLITICIAN

Municipal Vote Share of Laire Rosado Maia, PMDB-RN

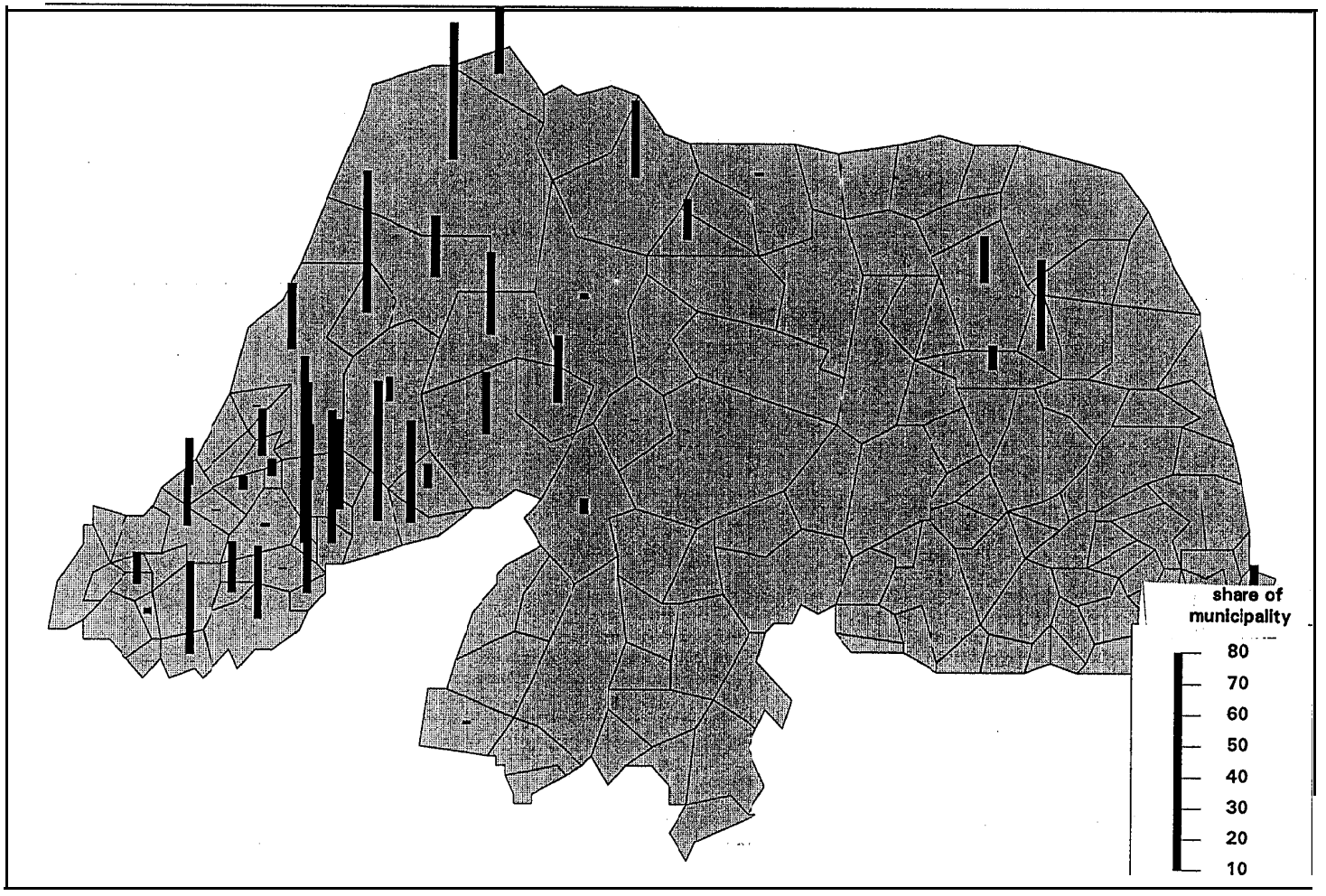
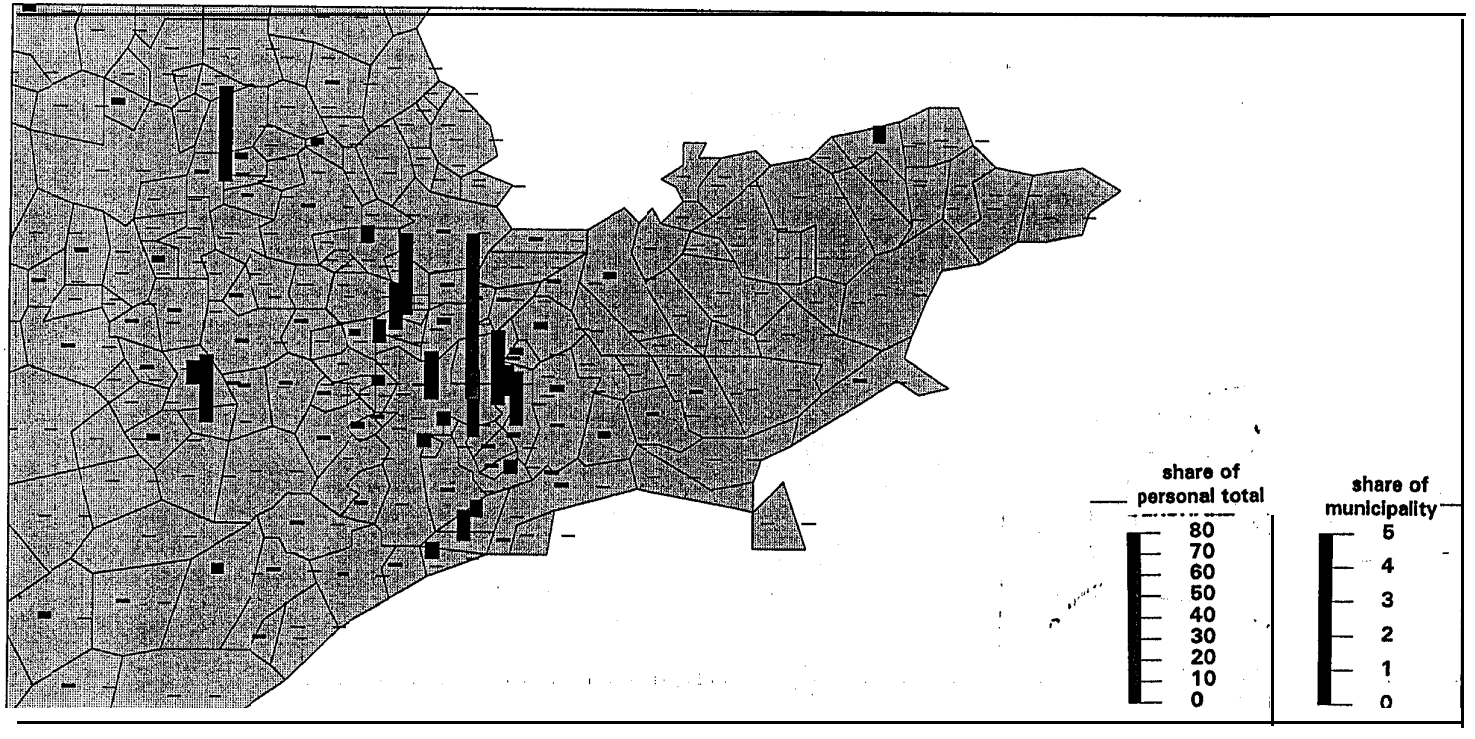


FIGURE 2: VOTE DISTRIBUTION FOR A WORKING-CLASS CANDIDATE

Eduardo Jorge, PT-Sao Paulo



common examples are Japanese-Brazilians and *evangélicos,* Brazilian Protestants who typically vote for evangelical candidates. In Figure 3 Antonio Ueno of the state of Paraná, picks up the ethnic Japanese vote. While the Japanese-Brazilian vote is ethnically loyal, it is not very large, so Ueno's coalition is composed of small slices of many municipalities.

(Figure 3 about here)

Scattered-dominated municipalities. This pattern often fits candidates who, before running for deputy, held such state-level bureaucratic posts as secretary of education, a job with control over substantial pork barrel. The pattern also reflects candidates who make deals with local leaders wherever they are available. Figure 4 presents the vote of João Alves, a old-time Bahian politician. Alves' pockets of voting strength scatter over the state, but where he got votes, he gots lots of votes. How can a candidate garner 70-80% of the vote in such a dispersed set of municipalities? The answer has to be deal making. João Alves made deals wherever he found willing local bosses. He delivered pork-barrel projects; the bosses paid off in votes. Alves chaired the congressional Budget Committee, and in 1993 he was accused of receiving tens of millions of dollars in kickbacks from construction companies support their projects. João Alves came to the Congress in 1966 with no money; by the early 1990s he had millions of dollars in real estate and a $6 million airplane.[4]

(Figure 4 about here)

Central questions. The patterns of Figures 1-4 represent electoral outcomes. These outcomes result from the interaction of formal rules, the varying propensities of voters in electoral districts of differing socioeconomic characteristics, and the strength of state-level political leaders. In other words, Brazil's unique brand of proportional representation combines with its decentralization and federalism to produce these overall electoral outcomes. To recapitulate, the central attributes of Brazilian electoral politics include open-list PR; large, multimember districts; no effective threshold for party representation in the Congress; candidate selection by subnational leaders in districts with their own political games. On the basis of the taxonomy introduced above and the illustrative figures, we begin to see the outlines of the puzzle: What kinds of deputies have spatially concentrated support? What is the basis of spatial concentration: family ties? appeals to particular voter cohorts? political career? deals with local bosses? Why and how do deputies modify their strategies from election to election? Is there a difference between. the strategies of high-ranking 'and marginal

[4] Alves commanded a group of deputies known as the "seven dwarfs" because of their small stature. Almost all have been accused of extortion and accepting kickbacks. Nearly all have the same vote distribution: scattered pockets of very intense support.

FIGURE 3: A SCATTERED-SHARED DISTRIBUTION: THE ETHNIC VOTE IN PARANA

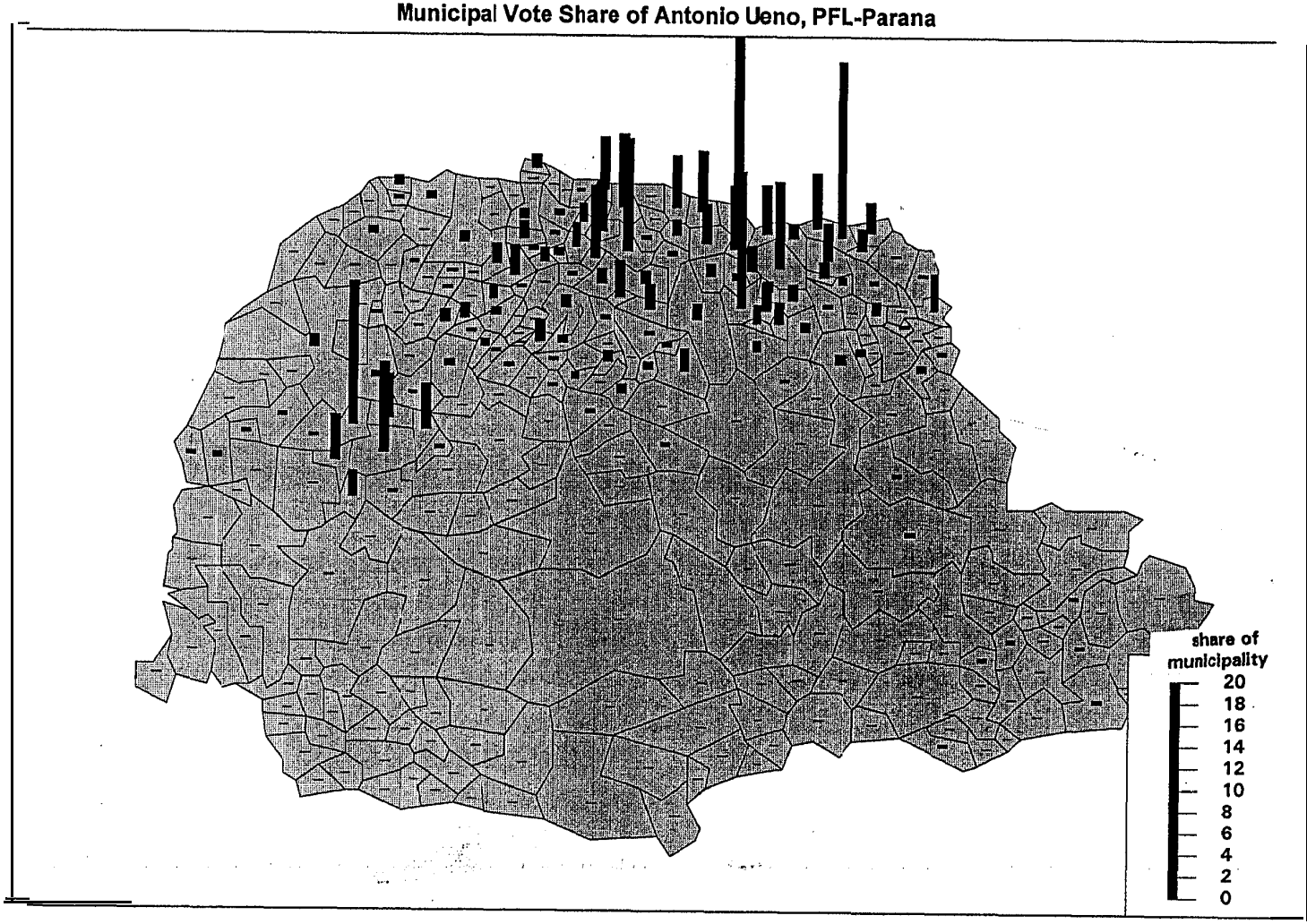
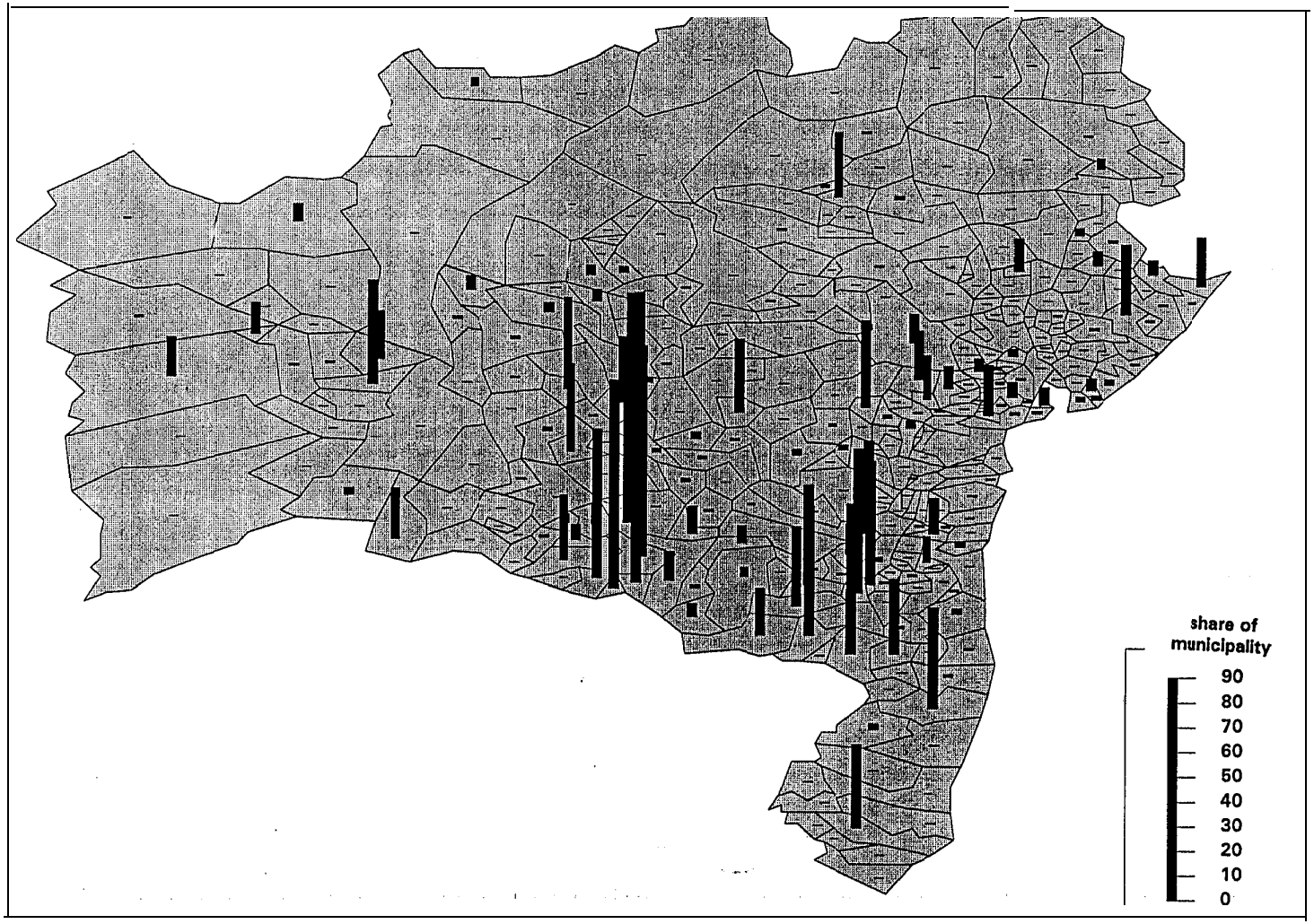


FIGURE 4: VOTE DISTRIBUTION OF THE "BUDGET MAFIA"

Municipal Vote Share of Joao Alves, PFL-Bahia



deputies?"

Part 2: A Theory of Candidate Strategy under Open-List Proportional Representation

Optimal campaign strategies differ sharply between proportional and majoritarian electoral systems. Because small slices of the electorate may guarantee victory in proportional elections, office-seekers pursue not the median voter but particular voter cohorts (Cox, 1990). How candidates define these cohorts depends, of course, on the size of potential targets and the total votes required for election. But strategies also depend on the cost of campaigning as candidates move away from core supporters, the existence of local leaders seeking patronage, the spatial concentration of candidates' political careers, and the simultaneous occurrence of elections for other levels of government.

How candidates calculate the costs and benefits of appeals to particular voters

Candidates know roughly how many votes will guarantee a seat in their state's congressional delegation. This minimum target depends on expected turnout and on the number of votes taken by the most popular candidates in their party. Given a vote target, candidates imagine a variety of ways to construct a winning coalition. Their strategic calculations center on the costs and benefits of appeals to any potential group. In this section I consider some principles affecting candidate calculations under Brazil's electoral rules. These principles operate nationwide, i.e., without reference to differing subnational contexts. Subsequently, I will embed the rules in aspects of Brazilian reality that vary across states.

Voters as members of politicized groups. A rational candidate seeks to expend the least resources for the most support. The ideal target is a self-conscious member of a large group carrying an already-politicized identification or grievance. At the same time, candidates seek cleavages of low polarization, low in the sense that voters outside the group only weakly oppose its grievances. In other words, candidates seek single-issue voters whose positions alienate no one.

Some group identifications are virtually automatic, predating the campaign. Japanese-Brazilians, for example, always understand their ethnicity; evangelical

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[5] Brazilian political scientists have initiated work on these questions. Fleischer analyzed vote distributions in Minas Gerais (1973, 1976, 1977), Kinzo (1987) has explored São Paulo, and Lima Junior (1991) has led a study of Rio de Janeiro, but no one has undertaken multi-state research. The lack of municipal-level voting data has been one major constraint; another is the absence of computerized maps of Brazilian municipalities and the unfamiliarity of scholars with spatial analysis.

Protestants know they are not Catholics. Evangelicals, however, are more likely than Japanese-Brazilians to see themselves as victims; hence the evangelical vote is more unified. In both cases, the outside society sees the cleavage less intensely, so candidates can pick up evangelical voters without losing all the Catholics.

At the other extreme, in terms of the permanence and politicization of identifications, lie occupational and recreational groups. For industrial workers, class-consciousness depends on the nature of the production process, wages, and labor organization- Workers in small factories, especially in the informal sector, tend to be younger, less skilled, more recent city dwellers, and more deferential toward owners. Such workers support candidates offering patticularistic benefits over candidates promising social reform. Participants in recreational groups may see themselves as group members, but candidates have to persuade them that their identification involves political choices. Brazilian candidates sometimes appeal to the followers of professional soccer clubs, but such appeals risk alienating other teams' partisans.

Community identifications, especially in small communities, fall closer to the automatic side. Every town has some sort of political organization, so face-to-face communication is usually high. Local politicians try to strengthen community identification, because their own influence depends on delivering voters to candidates. The centrality of government employment facilitates voter mobilization in small communities, and the absence of civil service protection politicizes public sector jobs. Finally, because elections for local executive posts and for legislatures are staggered, local officials are motivated to make deals with legislative candidates; i.e., mayors have clear property rights to their offices -- they will be in the job -- both before and after legislative elections.

The difficulty of securing benefits for the group. Candidates naturally prefer to purchase support with other people's money, and in most cases their personal resources can have only marginal impact anyway. Candidates cannot, for example, promote minimum wage legislation with their own money. Thus candidates seek support for their campaign promises in the legislature.

When will deputies opt for distributive politics, i.e., when will they prefer geographically separable goods? Pork-barrel politics dominates when the demand for public goods is strong, when it is relatively stable and district-specific, and when the decisional system is fragmented rather than integrated (Lowi, 1964; Salisbury and Heinz, 1970). Brazil is characterized by the existence of powerful states acting in their own interests, selection of congressional candidates at the state level, municipalities independently electing local governments, weak national party leaderships, and separation of powers between the president and the federal legislature. In addition, enormous regional inequalities leave some municipalities so poor that government employment and subsidies provide their only sources of income. Thus Brazilian politics

favors the provision of local, geographically separable benefits.

The costs and benefits of barriers to entry. Why do deputies seek to insulate voter cohorts from the incursions of present and future competitors? Remember, Brazilian law permits reelection. Deputies know that barriers to entry, by eliminating competition, reduce the cost of future campaigns. The difficulty of erecting barriers depends on the nature of the group to be shielded. It is difficult, for example, to claim exclusive credit for minimum wage hikes, because no deputy has a natural link to the issue akin to a community interest, and because wage hikes require broad legislative coalitions. In the case of ethnic or evangelical groups, barriers are essentially automatic against outsiders, but they are much more costly to erect against insiders such as other ethnics or Protestant ministers.

Is it costly to erect barriers around particular localities? A simple "you're not from around here" shields a small, highly integrated community. Violence, in the form of disruption of campaign rallies or physical threats, is routinely employed in rural areas. More diverse communities develop factional competition, with each side relying on strongly partisan supporters. Here candidates from the same party face high barriers, but candidates from other parties enter easily. In more complex urban areas no single faction or leader controls a significant portion of the electorate, and the police are less beholden to individual politicians. Many candidates seek votes, and barriers to outsiders from any party are hard to maintain.

Suppose a broker controls access to a group of voters. Brokers charge; their fee may be a cash payment or a slice of the benefit secured for the group itself, such as a road-building contract. If the broker successfully erects rigid barriers against the entry of other brokers, candidates know they will pay more for the broker's votes than the sum of the prices they would pay for each vote individually. If, by contrast, the broker cannot protect his turf, candidates pay a lower total price for these votes than their individual prices. Whatever the price and form of payment, brokerage fees require candidates to secure *separable* resources.

In sum, barriers to entry depend on both political and social factors, especially on community size and the presence of brokers- Candidates erect fences at the lowest cost in small communities with unified political leadership. Where leadership is bifurcated, barriers restrain party compatriots rather than competitors from other parties. And in large urban centers cvcryonc is frcc to find their own niche.

The cost of communicating with potential voters. Though candidates cannot buy radio or TV time, media access remains central to campaigning. Radio and newspapers in Brazil are generally quite partisan; hence media connections provide an effective barrier to competition as well as a way of communicating with voters. In recent years many radio broadcasters, popular as a result of social assistance call-in shows, have become

candidates.

All candidates rely on voters talking with each other. Communication among voters is affected by population density, of course, and by the nature of social and economic activity. Sunday worship services, for example, are central for evangelical candidates. Workers in large, strongly unionized industrial plants are more politicized and more leftist than those in small workshops.

Finally, Brazilian campaigning remains a direct, grass-roots activity. Candidates travel from town to town holding meetings and rallies; indeed, they spend considerable time in small communities. Is it rational to campaign where one's message reaches few voters? Indeed it is. First, the more concentrated the target group, the lower the cost of constructing a winning coalition. And second, winning electoral coalitions covering small areas are likely to be locational, i.e., based purely on community identification. While in theory locational and non-locational criteria might match perfectly (all Southerners-are Black, all Northerners are White), few such cases exist in Brazil. Thus the physical distance between a candidate and the last voter, the voter whose support assures victory, is nearly always smallest for locational coalitions.[6]

The supply of politicians. The final cluster of variables refers to the career trajectories of candidates offering themselves to the electorate. Local candidates, former mayors or city council members, should always be plentiful .[7] Except for those whose careers are rooted in large metropolitan areas, local candidates naturally develop *concentrated-dominant* distributions. What happens when candidates appear with backgrounds in state bureaucracy, or with no political history? Not a simple question, because at any given election the mix of careers among candidates depends on two sets of factors. One set (which may be called *endogenous)* depends on the context of the election itself, in the sense that new candidacies depend on the initial distribution of *incumbent* candidates. For example, where transportation costs are high, where state-wide name recognition is low, where concentrations of workers or ethnics are weak, and where voters prefer candidates with municipal political experience, only local types will offer themselves. But the career mixes of candidates also depend on a second set of factors, *exogenous* in the sense that new candidacies are a response to the opportunities and rewards of legislative activity. People with different backgrounds

[6] The exceptions include winning clcctoral coalitions baaed on class voting in the cities of Rio de Janeiro or São Paulo.

[7] Mayors must seek some other otfice, because they cannot run for immediate reelection. Federal deputy, however, is not necessarily a "higher" office; indeed, in 1992 about one-fifth of all Federal deputies went the other way, running for mayor. Local office holders are abundant as' candidates except in frontier states, which develop so fast that local politics tends to be extremely weak. Municipalities on the frontier depend for their very existence on state and federal largesse, and politicians often "parachute" in to pick up votes.

become candidates because they seek personal or group rewards from legislative activity.

My argument is simple: in campaigning, what you did affects what you do. For many local candidates a run for the federal legislature is their first state-wide political activity. Locals begin with a single name-recognition peak, *so* a *concentrated* campaign is the obvious choice. But suppose the candidate headed a state government department that distributed roads, schools, or basic sanitation projects. Such candidates enjoy substantial name recognition in the communities benefitting from this largesse, and surely a bureaucrat considering a political career would locate projects with a view to their political advantage. Thus the voting support of such candidates should be *scattered* rather than concentrated. Whether they will dominate or share municipalities depends. on the target municipality and on the government program they commanded. In rural communities, domination can result, either because a single program affects many people intensely or because the program may be designed to buy the support of local influentials rather than individual voters.[8] In urban communities various state programs -- often directed by competing politicians -- coexist, and voters are less easily controlled. Finally, suppose the candidate's career is in business. Business people usually begin with some central recognition peak around the location of their business, but these peaks are seldom as large as those of local politicians. The advantage of business types, of course, is money. Money buys voters *via* tee-shirts, pressure cookers (bottom half before the election, top half after), and political jobs. Money buys the political bosses who control voters, and money greases the *dobradinhas* between state assembly and federal Chamber candidates. For business types, then, *scattered* support patterns are natural: the strategic business candidate buys support wherever available.

At this point let us distinguish between challengers and incumbents. Suppose a local politician challenges the incumbent in a concentrated-dominant bailiwick. Superficially, the contest resembles a contest over an occupied single-member seat in the U.S. House, but it is actually more difficult. Local bailiwicks are usually sparsely populated. If the challenger picks up only 51% of the incumbent's vote, the confrontation leads to mutual defeat. Recall, in addition, that questions of national policy have little impact on electoral choice. Pork does matter, and it serves the interest of neither local bosses nor individual voters to replace a deputy who has brought home a healthy share. Overall, then, a local vs. local contest is so difficult it should rarely occur.[9] Unless the incumbent neglects the district or angers the local

[8] A road, for example, may be intended to enrich a particular contractor or benefit a big farmer.

[9] In the 1990 election, the governor of São Paulo, Orestes Quércia, supported a challenge to a deputy who had previously been a member of Quércia's party, the PMDB, but had defected to the PSDB. Quércia's well-financed challenger won, but so did his target.

boss, local challengers should await a retirement.

What should we expect from local incumbents themselves? Given the infrequency of direct challenges within their key bailiwicks, local incumbents mainly fear a drop in the aggregate party vote. If overall party support declines sufficiently, their post-election rank -- even if unchanged -- might no longer guarantee a seat. So local incumbents, needing new voters, have to fish, either in the bailiwicks of party colleagues or in the bailiwicks of incumbents from other parties. When candidates in the U.S. face a similar choice, they remain in friendly territory, i.e., Democrats campaign in Democratic neighborhoods, Republicans in Republican neighborhoods. But party identification in Brazil is very weak, so deputies easily attract supporters of other parties. And since proportional representation rewards higher party totals with additional seats, party leaders discourage poaching in the bailiwicks of party allies. Thus Brazilian candidates, unlike Americans, should forage for votes in *unfriendly* territory. And since shared municipalities are more vulnerable than dominated municipalities, domination as well as concentration should decrease for local candidates.

Changes in spatial concentration also occur among non-local candidates. The core constituencies of evangelicals, broadcastors and state bureaucrats -- candidates relying on scattered distributions -- are relatively stable in size, so they need new followers. Since some of the pork these deputies deliver to their core supporters benefits others in the same municipalities, and since the deputies save resources by remaining near their core support, their spatial concentration should *increase.*

What happens to business candidates? Businessmen initially buy votes with payoffs to focal bosses, but once in the legislature they are likely to seek more popular backing to fill in missing municipalities between areas of strength: hence concentration among successful business candidates should rise. Greater concentration, however, may not lead to greater electoral success. The electoral support of business candidates is more fickle than the support enjoyed by locals. Better offers sway bosses loyal only to the highest offer. Thus businessmen face contradictory incentives. While opportunities are clearly better for candidates unconstrained by local career histories, businessmen can lose support as quickly as they gain it. We would expect, therefore, that business will supply many new candidates, but business incumbents are more vulnerable to electoral defeat than candidates with other career trajectories.

Part 3: ANALYSIS

Though our data include no elections in which there were no incumbents, and though the availability of results for only four elections may leave the ultimate

evolution of the system ambiguous, the broad outlines of the argument should stand or fall on empirical grounds. The analysis begins with a model of campaign strategy using budgetary amendments as indicators of candidate intent. I then turn to actual electoral outcomes.

Campaign Strategy in the 1990 Election

Deputies submit budgetary amendments to retain old followers and attract new ones. Only in 1988 did the Congress regain the constitutional right to modify the national budget, but deputies learn quickly. Between 1989 and 1992, the annual number of budgetary amendments climbed from 8,000 to 72,000, with over 90% targetting specific municipalities." If budgetary amendments are a measure of candidate strategy, we should model, for any given municipality, the probability that a deputy running for reelection will submit a budgetary amendment benefitting that municipality. Specifically, the probability that a deputy running for reelection in 1990 offered an amendment in 1989 or 1990 targeting municipality X is a function of six factors: (1) the distance of X from the center of the deputy's 1986 vote, (2) the dominance and concentration of the deputy's 1986 vote, (3) the vulnerability of X to candidate invasion, (4) the socioeconomic and demographic similarity of X to the deputy's core constituency, (5) the deputy's electoral insecurity, and (6) the deputy's career trajectory.

Distance from 1986 vote center. The 1986 "vote center" of each incumbent deputy is measured in two ways." *Municipal center,* C_m, is based on municipal domination, the percentage of each municipality's total vote received by deputy *i*. *Personal center,* C_p, is based on personal share, the percentage of deputy i's statewide total received in each municipality. I then calculate the distance from C_m or C_p to every municipality in the state. As municipalities become more distant, name recognition declines and the cost of campaigning increases; distant municipalities are less likely to be targets for deputy *i*. At the same time, deputies with *personal* vote centers in municipalities where they are not also *dominant* (typically in big cities) are likely to make amendments farther from their personal centers, because they share the central municipality with so many other candidates that credit claiming is hopeless.[12]

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[10] Appendix C discusses sources and problems involving both the budgetary amendments and the electoral results.

[11] The center is the centroid of a plane surface in which the votes in a municipality are all assumed to be cast at the municipality's center. Note that C_m and C_p are not necessarily at the actual physical center of any particular municipality. The *socioeconomic* centers discussed below, however, are indeed individual municipalities.

[12] For an interesting treatment of the effect of voter distance from candidates' home media market, see Bowler, et *al. ., 1992.*

Dominance and concentration. Earlier, I defined dominance and concentration as characteristics of individual deputies measured at the level of the state as whole. Clearly, concentration makes sense only at the level of the individual municipality. Dominance, however, is meaningful at both municipal and state levels. A deputy, for example, could dominate minor municipalities but share their large municipalities with other deputies. Only municipal-level dominance should affect amending.[13] The higher the level of municipal dominance, the more the deputy can claim credit for pork-barrel efforts, and, therefore, the more budgetary amendments he or she will offer. When dominance reaches very high levels, the deputy has a "safe seat" (as in the old one-party American South); hence amendments should decline.

What should be the consequences of concentration? Candidates with concentrated 1986 voting support might make more amendments as a response to their vulnerability to the incursions of candidates with bureaucratic or business backgrounds. Concentrated candidates move out from some original base in roughly concentric circles. In a sense, they must be less selective than candidates with scattered votes, because they choose targets not just on the criterion of vulnerability but also on the criterion of nearness to their own core. As a result, concentrated candidates "over-amend."

Municipal vulnerablility. In municipalities dominated by strong incumbents seeking reelection, challengers have little incentive to chase voters. At times, however, conditions change; municipalities become permeable. The retirement of a dominant deputy leaves an electoral void. A high proportion of migrants signals an electorate free from control by old leaders and old loyalties. Finally, municipal fragmentation stimulates invasion, fragmentation either in the sense that many candidates from the deputy's party share its votes or in the sense that candidates from many parties enjoy electoral success.[14]

Social match. Most incumbents have identified certain occupational or ethnic groups as key supporters. It makes sense to target new municipalities where similar groups reside. Deputies relying on working-class votes seek municipalities with many workers. Deputies appealing to civil servants carry that appeal to localities where government is large. Thus deputies seek new targets similar in socioeconomic

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[13] If *state-/eve/* dominance has any effect at the level of the individual municipality, it must be true that deputies whose support comes mostly from municipalities they dominate are likely to make more amendments even in municipalities they only share. That is, dominant deputies' pork-barrel habit makes them behave irrationally.

[14] *Inter*party fragmentation is defined as 1 minus the sum of the square of each party's share of the total vote. *Intra*party fragmentation is defined equivalently at the level of the individual candidate, i.e., 1 minus the sum of the squares of each candidate's share of the party total.

composition to old bailiwicks. I begin by defining, for each deputy, a core municipality. Personal share is the first criterion; municipal dominance is the second. Then I calculate the difference between each municipality and the core municipality on a series of socioeconomic indicators: size of electorate, per capita income, percentage of work force employed by government, and percentage of population recently arrived. For each indicator, if a municipality is more like the deputy's core municipality, it should receive more amendments.[15]

Electoral insecurity. Remember, individual votes largely determine deputies' electoral fortunes. A victorious deputy's margin might be one vote or one million votes. Those whose 1986 rank was low, who barely escaped elimination, ought to work much harder in the next election. Their overall number of amendments should increase.

Career trajectory. Because politicians with "local" backgrounds are more likely to maintain close ties with constituents than politicians with bureaucratic or business backgrounds, local candidates should amend more. In addition, local candidates should concentrate their campaigns, including their budgetary amendments, closer to home. Bureaucrats and business people scatter campaign activities, buying support where they installed projects and where they identify vulnerable municipalities. Candidates from families with long traditions in politics ought to be more pork oriented, making more amendments.'[6]

Pooling and estimation. Estimation began with observations at the level of individual deputies; that is, all deputies who served in 1986 and ran for reelection in 1990. I then pooled the deputies by state, and in two cases -- six small Northeastern states and three Southern states -- I pooled deputies in groups of states. This multi-state pooling, which increased the number of observations substantially, combined states that are similar in size, socioeconomic conditions, and political traditions.[17]

Given that the number of amendments in each municipality cannot be less than

[15] With one exception, the socioeconomic indicators come from the 1980 census. The size of the voting population is drawn from the 1988 electoral rolls.

[16] I considered deputies to have political family if a relative of the same or older generation was or had been a mayor, state or federal deputy, federal senator, governor, or president. For biographical data see Câmara dos Deputados (1981, 1983, 1991), Brasil. *Assembléia Nacional Constituinte* (1989), and *Isto é: Perfil Parlamentar Brasileiro (1991)*. Interviews with journalists supplemented the official sources.

[17] The six northeastern states included Alagoas, Paraiba, Pernambuco, Piaui, Rio Grande do Norte and Sergipe. The three states of the South included Paraná, Santa Catarina and Rio Grande do Sul.

zero, and given that most deputies make only a few amendments in any particular municipality, ordinary least-squares estimation is inappropriate. The "event-count" model, estimable by a Poisson regression, is a better technique. The results presented here were estimated as a maximum-likelihood Poisson model using the software package Limdep. Table 1 presents simplified results for six states or state groups: Bahia, the small Northeastern states, Minas Gerais, Rio de Janeiro, São Paulo, and the three Southern states. Appendix A presents full results, including coefficients and standard errors.

(Table 1 About Here)

Interpreting the results. In each state or state group, the model achieved a high level of statistical significance, so the empirical results support the overall theory well. In terms of the theory's specific elements, let us consider first the arguments confirmed in all or nearly all the six settings, then results that vary across the cases, and, finally, those hypotheses failing to receive consistent support.

Everywhere municipal dominance powerfully stimulated amendment making. The higher the percentage of a municipality's votes a deputy garnered in 1986, the more likely was that deputy to pursue more support in the same place in 1990. Given the negative slope on the squared term, at some point deputies regard a municipality as "locked up," thus meriting no additional effort. Diminishing returns, in other words, set in, but the actual inflection point was beyond nearly all the cases.

In three cases (Bahia, the Northeast, and the South) deputies with more spatially concentrated support made more amendments. In Minas Gerais, Rio de Janeiro and São Paulo, spatially concentrated deputies not only made more amendments, they did so at an increasing rate as the distance from their center of municipal dominance increased.[18] Is this counter-intuitive? That is, why don't concentrated deputies stay home, and why don't they make fewer distant amendments than deputies with scattered bases? Recall, however, that in comparison with state bureaucrats or business types, concentrated deputies lack state-wide connections. Between 1982 and 1986, the states of Minas Gerais, Rio de Janeiro, and São Paulo had shifted toward the PMDB, electing many new deputies. In 1990 the PMDB was expected to perform badly, so the deputies of the class of 1986 felt vulnerable. They could only be competitive by getting away from their bases. They might not go to the far reaches of their states, but a jump away from the center was prudent.

[18] The negative coefficient on the concentration term in São Paulo is dominated by the interaction terms.

TABLE 1: **Maximum-Likelihood** Poisson Estimation:
Will Deputy *Submit Budgetary Amendment for Municipality?*

Municipal and Individual Characteristics	*Prediction*	Bahia	Northeast	Minas Gerais	Rio de Janeiro	São Paulo	South
Distance from municipal center	-		-				+
Distance squared	t		+				
Distance from personal center	t		+	+		+	
Distance squared			-		+		
Municipal dominance	t	+	+	+	+	+	+
Dominance Squared		-	-				
Concentration	?	+	+				+
Concentration * municipal distance	?			+	+	+	
Concentration * personal distance	?						
Percent of vote to retired deputies	?				+		
Percent migrants	+	+	+		-	+	+
InterParty fragmentation	+	+	+		+	+	+
Intraparty fragmentation	+	+	+	+		+	
Match to core: Migrants				+			
Match to core: Income distribution	-		+			-	
Match to core: Government employees	-	-	-		-	+	
Match to core: Population	-	+	-		+	+	
Rank in party list in 1986	+	+	+	+	+	+	+
Local career	+	-	+	+	+	+	
Local career * municipal distance	-	+	-	+	-	-	+
Local career * personal distance	-	-	+		-		
Political family	+		-		+		
Political family * municipal distance	?	-					-
Likelihood Ratio		1339.	1325.	2516.	525.6	1100.	2283.

"+" means a positive coefficient, significant at the .05 level.
"-" means a negative coefficient, significant at the .05 level,""
All Likelihood Ratios are easily significant.

Both municipal vulnerability and individual insecurity matter. Municipalities with high proportions of migrants or with high levels of party fragmentation were significant campaign targets. Deputies finishing low on their party lists (low ranks receive high numerical rankings) made more amendments.

Now consider the arguments enjoying mixed support. At first glance, the distance hypotheses seem only weakly supported. In fact, however, the amending behavior of deputies reflects the distance of municipalities from their core support in every case. Minas Gerais and the six northeastern states fully supported the original argument ("amend less with distance from municipal center, more with distance from personal center").[19] Deputies in Bahia, Rio de Janeiro, and the three southern states decreased their campaigning as a function of each municipality's distance from the core of their personal support rather than the core of their municipal domination. In São Paulo, deputies *increased* their campaigning in localities farther from the center of their personal support. Why the variation? In Minas and the Northeastern states the average level of municipal domination is much higher than anywhere else. *Mineiro* and *nordestino* deputies get substantial shares of their personal totals in places where they dominate; hence these localities remain crucial for them and they stay close to home. In Bahia, Rio and the South, the weighted average of domination (i.e., the deputy's percentage of the municipality's total votes) is less than half the 'level attained by *mineiro* and *nordestino* deputies. With low levels of domination, credit claiming is harder, so the center of municipal domination is not the campaign reference point. Instead, deputies focus their campaigns where they receive most of their votes. Finally, why were *paulista* deputies, deputies who campaigned *away* from their personal vote centers, so deviant? I am not certain, but it appears that deputies with substantial votes in the core municipality of São Paulo city jumped out to the large municipalities ringing the core. Given the impossibility of credit claiming in the core metropolis, deputies may conclude that the roughly five million people in the surrounding area provide a better target.

The original theory predicted, albeit hesitantly, that candidates with backgrounds in local politics would amend more than those with business or bureaucratic careers. In four cases the hypothesis received support, but in Bahia and in the South local candidates made *fewer* amendments. Why? Bahia's governor, Antonio Carlos Magalhães (popularly known as ACM), is a state executive so powerful he can command candidates to campaign in particular municipalities. ACM's strength derives from his ties to the old military regime. These ties brought Bahia considerable federal

[19] The absence of the predicted sign on the quadratic term simply means that amending behavior showed no diminishing returns.

largesse, and ACM's allies in the state bureaucracy reaped the political profits.'" Deputies with state-level bureaucratic backgrounds dominate Bahia's congressional delegation. Only one of every eight *baiano* deputies -- the lowest of any state -- has a local past, and purely local deputies are weak. For Bahia's few locals, venturing outside one's bailiwick risks incurring the wrath of ACM. Bad idea.

Politics in the South is light years from politics in Bahia. The South has twice the percentage of local candidates, party labels. in the South are meaningful, and no governor enjoys the hegemony of an ACM. But the South does combine intense spatial concentration with high levels of party fragmentation. Its electoral battles thus generate more budgetary amendments. At the same time, Table 1 reveals that in the South high *intraparty* fragmentation *reduces* amendments. Intraparty fragmentation is high in big cities. These cities receive few amendments, because fragmented voting hinders credit claiming. In other words, local politicians in the South stay in their bailiwicks, making fewer amendments.

Consider now the unsuccessful hypotheses. Retirements (measured by the percentage of the 1986 vote received by candidates not competing in 1990) stimulated more amendments only in Rio de Janeiro, and in the South amendments actually declined where retirements freed a greater percentage of voters. This result is a surprise, because in interviews Southern deputies talked about municipalities made vulnerable through retirements. Perhaps it was a question of timing: the deputies offered these amendments in 1988 and 1989 (for the 1989 and 1990 budgets); at that time they may not have known who planned to retire.

Why do deputies from political families fail to distinguish themselves? Political learning, one suspects, is very rapid. Whether members of political families or not, deputies quickly learn campaign tactics. Interestingly, members of northeastern political families made significantly *fewer* amendments than *nordestinos* without family ties. Such ties are much more important in the Northeast than anywhere else; about 30% of all deputies in these states have political relatives, compared to less than 10% in the South. Political family in the Northeast often means old-style deal making, not populism; traditional *nordestino* politicians do less for their constituents -- especially in terms of social assistance -- and more for local bosses.

Finally, what about the variables measuring the "social match" of each municipality to the deputy's core constituency? If deputies appeal to constituencies similar to those where they do well, amendments ought to decrease as social distance increases. Government employees are a central constituency for many deputies, and

[20] I am indebted on this point to Celina Souza, Gei Espinhara, and other Bahian social scientists who introducted me to the mysteries of Bahian politics;

the hypothesis that such deputies would seek similar municipalities seems confirmed. Four states or state groups had the predicted sign; only São Paulo failed. São Paulo's deviance is probably a function of the extreme unattractiveness of the highly competitive core city, where most bureaucrats live, as an amending target.

The other social match variables yielded poor results. Similarities in the percentage of migrants and in income distribution produced the correct sign more often than not, but the results are insubstantial. Given the positive slope on the earlier "percent migrants" variable, we see that all deputies target migrants, but there is no special "migrant seeking" deputy. The failure of deputies to seek municipalities of similar size is also understandable, at least in retrospect. Deputies avoid both small and large localities. Small communities yield few votes; big cities are too competitive.

If social matching works anywhere, it ought to be strongest in the most developed regions of the country, but Rio, São Paulo and the South produced results no more consistent than the Northeast, Bahia, and Minas Gerais. The negative result is important: overall, most deputies see the social and ideological characteristics of municipalities as minor factors in their use of pork-barrel politics as a tool to maximize electoral support.

Recapitulation. What can we conclude from this statistical estimation of the theoretical model? The municipal-level campaign strategies of Brazilian deputies respond strongly to the overall spatial concentration of their electoral support, to their -- local dominance, to the vulnerability to invasion of potential targets, to their own electoral weakness, and to the political trajectories of their careers. But few deputies appeal for votes along ideological lines, at least by promoting government projects, because the absence of party programs and the weakness of party discipline renders such appeals unproductive.[21]

Does Strategic Behavior Pay Off Electorally?

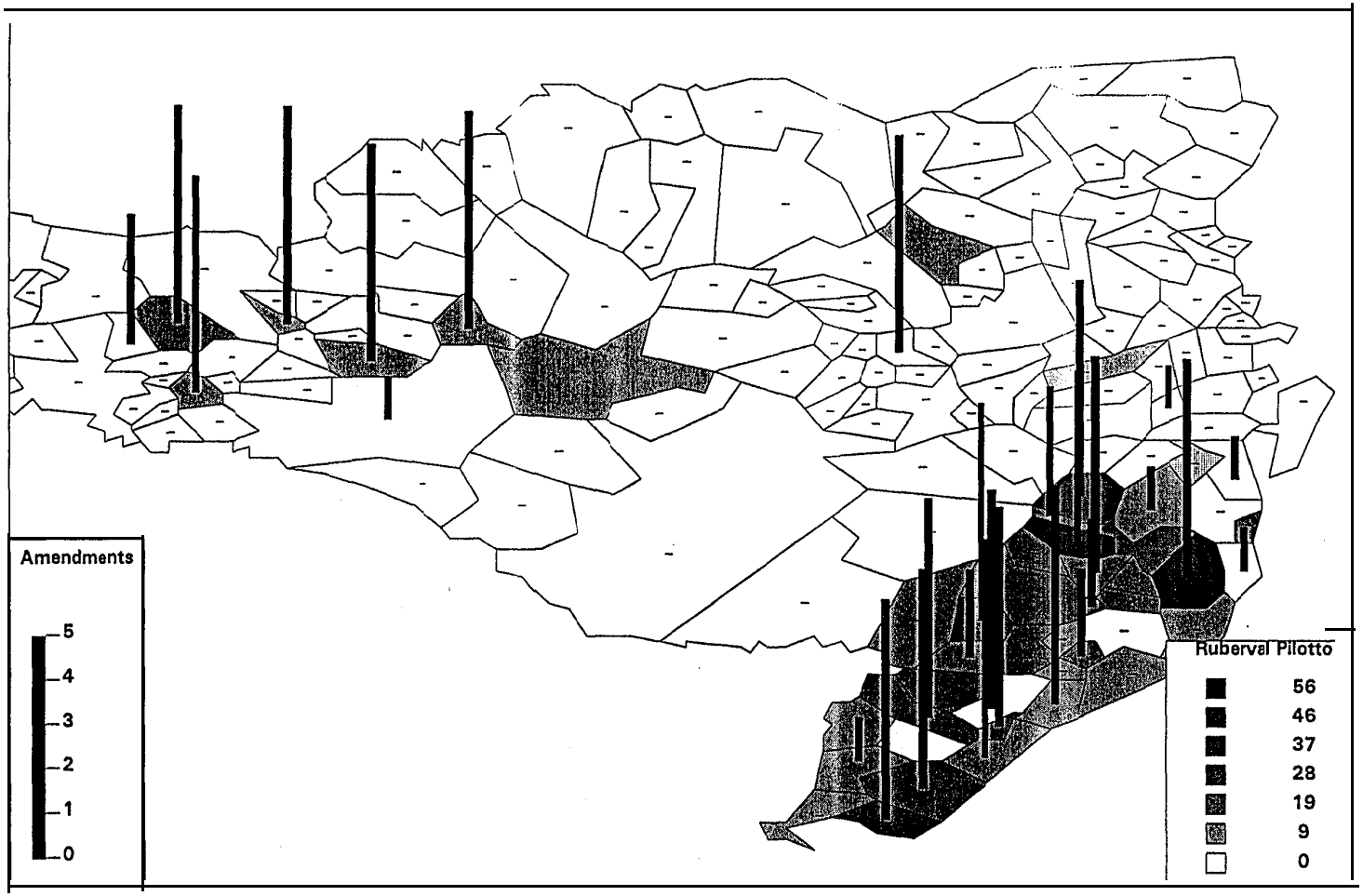
Did the tactics of our vote-seeking deputies pay off in the 1990 election? Figure 5 provides a clue for one deputy; this *catarinense* gained votes where he made amendments. In general, however, the question is difficult to answer. The results of strategy are clearer when some players blunder. If most deputies adopt vote-maximizing strategies, electoral decisions turn less on strategy and more on partisan shifts and personal, idiosyncratic factors.

(Figure 5 about here)

[21] Certain parties, notably the Workers' Party (PT), do make primarily ideological appeals.

FIGURE 5: DO BUDGETARY AMENDMENTS YIELD ELECTORAL GAINS?

Amendments and Percentage Vote Gain, 1986-1990, for Ruberval Pilotto, PDS-Santa Catarina



The "outcomes" model estimated in Table 2 resembles the "strategy" model, but with some important additions. First, it incorporates 1986 vote as a predicter of 1990 vote. Second, the model assesses the effects of overall (state-level) dominance -- in addition to municipal-level dominance -- to discover whether certain kinds of deputies were more successful. Third, each deputy's amendments, along with the amendments made by other deputies, become explanatory variables. Last, the model includes (in order to explore partisan realignment) variables measuring the gain and level of right-of-center and left-of-center parties.[22]

(Table 2 about here)

The outcomes model works well, explaining more than 50% of the variance in candidates' 1990 vote everywhere in except São Paulo.[23] Vote received in 1986 was the most powerful predicter. Such a result would be expected in most polities, but here it contradicts the conventional wisdom, which holds that Brazilian deputies' unpopularity makes incumbency a disadvantage.

Campaigning matters. In Bahia, the Northeast, Minas Gerais and the South, amendments increased votes.[24] Amendments made a difference in Rio de Janeiro and São Paulo as well, but only for more dominant deputies, i.e., amendments in these states became more important as municipal dominance increased. Rio and São Paulo have mostly competitive municipalities and few dominant deputies. Where deputies share votes with many others, as in the capital cities, amendments are futile, but as dominance increases they make more sense.

Amendments by other deputies should lower a deputy's vote, because these amendments mean that opponents have also targetted the same municipality. Except in Rio and São Paulo -- where amendments of other deputies had no impact -- this is

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[22] PFL and PDS vote serve as indicators of right-wing gain. PMDB vote is the indicator of left-wing gain. The latter is an unsatisfactory measure, but in many municipalities the PMDB is the only opposition to the right. I then categorized each deputy, on the basis of party affiliation, in terms of right or center-left orientation . Note that shifts both for and against are included, because there are usually more than two party groupings competing. I experimented with 1982 and 1978 PMDB-MDB vote totals as a "purer" substitute for the 1986 PMDB vote; but the results were similar.

[23] I am uncertain why the model performs so poorly in São Paulo (although it easily attains overall statistical significance). Perhaps São Paulo's high level of ideological politics, coupled with the strength of leftist parties like the PT, encourages voters to choose the party label instead of individuals.

[24] Amendments were logged to reduce the effect of each additional amendment. In the South, the negative coefficient on the term representing the interaction between amendments and dominance means that above a certain level of dominance amendments are counterproductive. About five percent of southern deputies fall above this inflection point. Such deputies may be engaged in a hopeless struggle to maintain their bases in a region where dominance is increasingly rare.

TABLE 2: Ordinary Least-Squares Estimation8

What Determines Electoral Success?

Municipal, Individual, and Electoral Characteristics

	Bahia	Northeast	Minas Gerais	Rio de Janeiro	São Paulo	South
Vote in 1986	+	+		+	+	+
Amendments by deputy (logged)	+	+				+
Amendments * municipal dominance	t	+		+	+	-
Amendments by other deputies						-
Distance from municipal center	I				-	
Distance from personal center			-			
State-level dominance in 1986		+		+		+
Municipal dominance in 1986	+		+	+	+	
Municipal dominance squared		+	+	+	+	
Concentration in 1986			+			
Interparty fragmentation in 1986						
Intraparty fragmentation in 1986			-			-
Match to Core: Income Distribution						
Match to Corer Government Employees						
Match to Core: Population		+				
Rank in Party List in 1986			+			
Local career						
Partisan affinity gain from 1986	+	+				
PFL-PDS candidate	+		+		+	+
Partisan opposition gain from 1986	+		+		t	
PMDB or left candidate in 1986	+	+	+		+	
Political family		+	+			+
Political family * municipal distance				-		-
R^2	55%	57%	51%	50%	19%	56%
N [3]	(8040)	(6296)	(19678)	(1984)	(20520)	(9197)

"+" means a positive coefficient, significant at the .05 level.
"-" means a negative coefficient, significant at the .05 level.
All F tests for the entire model are significant at the .05 level.

just what happened. The hypothesis failed in Rio and São Paulo because these are states with low levels of domination and large metropolitan areas, two conditions discouraging credit-claiming, and, as a result, amendment making.[25]

Dominant deputies gained more votes than those with shared distributions, but concentration neither helped nor hurt.[26] In an election with greater than 50% turnover, and with substantial losses on the part of the center and center-left patties, this result has great practical importance. *Dominance protects deputies against partisan swings.* The incumbents who lost seats in 1990 mostly shared constituencies. Single-member municipalities are safe, and it matters little if they are contiguous or scattered. In an environment of weak parties and pork-barrel politics, deal making with local *politicos* -- the classic dominant-scattered pattern -- makes sense.

The strategy model demonstrated that deputies rarely seek campaign targets socioeconomically similar to their core municipalities. Not surprisingly, they are equally unlikely to gain or lose votes on this basis. Although in big cities deputies make ideological or group appeals, they do not seek or receive support in *distant* campaign targets on this basis. Given the high cost of poaching on the turf of fellow party members, you increase support by appealing to new groups in your base area, not by pursuing similar but distant groups. Consequently, changes in the overall ideological composition of legislators may result from electoral realignments, but such realignments are not the product of individual campaign appeals

Partisan shifts play an important role in the fortunes of individual deputies. Deputies were aided by the overall state-wide gains of parties nearby on the political spectrum, and they were hurt by the gains of their opponents. In Minas, Rio, São Paulo and the South, the signs of the two party strength variables ("partisan affinity gain" and "partisan opposition gain") differ due to the predominance of the center-left PMDB in the 1986 election. Since the winners in 1990 were the right-wing PFL and PDS parties, more 1986 deputies lost than gained. In Bahia and the Northeast the PFL was about even with the PMDB and the left, and both the right and the left (especially the PT) gained at the expense of the PMDB, so the shift away from the center hurt about as many deputies as it helped.

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[25] We know from the *strategy* model that deputies make fewer amendments as the distance from their vote centers increases. The *outcomes* model shows that their 1990 vote was generally unrelated to the distance from the core. Remember, however, that the model includes the 1986 vote, so the coefficient should only be significant if there is an additional, unexpected concentration of votes. This occurs in two cases, Minas and São Paulo, where deputies with more *concentrated* vote patterns did better in 1990 than in 1986. I do not know yet why this occurred.

[26] The dominance variable masks any possible effects contributed by the two fragmentation measures. Obviously fragmentation is lower when deputies dominate municipalities.

Finally, the career trajectories of deputies, at least as measured by previous occuptions or by membership in political families, had no consistent effect on electoral outcomes. In the Northeast, Minas Gerais and the South -- areas where substantial percentages of deputies come from political families -- such deputies had more success. But where families are most important (in Bahia) and where they are least important (São Paulo) the success of deputies was unaffected.

Recapitulation. The strategies of congressional deputies are effective. Deputies profit by making their own amendments, and they suffer when other deputies target the same municipalities. Deputies with dominant vote distributions are more successful, resisting partisan swings better than those with shared distributions.[27] But most deputies gain little from concentrating their vote distributions or from making group or ideological appeals, and career patterns have little influence on their electoral fortunes.

CONCLUSION

Most discussions of Brazilian politics stress its traditional, clientelistic roots. My approach adds an institutional perspective to more conventional social and historical explanations of clientelism. The theoretical perspective developed here is grounded in the strategic behavior of rational politicians. Faced with an electoral system whose chief attributes include open-list proportional representation, large multimember districts, candidate selection at the level of politically active subnational units, and the possibility of immediate reelection, most deputies pay little attention to ideological appeals. Instead, they seek secure bailiwicks, search for vulnerable municipalities, and strive to overcome their own electoral weakness through "wheeling and dealing." The tactics of vote-maximizing candidates vary, in part because political backgrounds differ and in part because the differing demographic and economic contexts of Brazilian states reward some tactics and penalize others.

Deputies reward bosses and voters with budgetary amendments. These tactics work, and the most successful deputies are able to resist partisan swings. But politicians learn fast. The number of budgetary amendments submitted in the Congress has grown exponentially, from 8,000 in 1989 to 72,000 in 1992. We might expect that the number of amendments would stabilize or even decline as deputies perceive diminishing returns. Any such perception was preempted, however, by an enormous scandal that erupted in 1993, a scandal involving hundreds of millions of dollars of kickbacks paid to deputies by construction companies benefitting from these amendments.

[27] Partisan swings, however, do occur frequently, and deputies can easily switch parties to profit from partisan surges.

The empirical analysis offered here has only scratched the surface of the theoretical argument.[28] Future research might examine ties between specific amendment *types* and electoral bases. Deputies seeking to reward municipalities where they are personally popular use social assistance programs such as schools and hospitals, while deputies looking to please local bosses stress roads and other big projects directly benefitting contractors.[29] A second direction would explore the congressional process of amendment acceptance or rejection. Why are some deputies more successful than others? Are there rules guaranteeing everyone a piece of the action? Can senior deputies buy the votes of needy junior members? A third possibility would investigate how strategies change as seniority increases.

Because Brazil's states support distinct patterns of spatial vote distribution, investigation might profitably move to that level. Successful deputies in the Northeast typically dominate their main municipalities, while deputies in the South and in more industrialized states face-much more competition from candidates of other parties. Deputies in the South, on the other hand, have much more concentrated vote distributions. Do education and wealth encourage concentration, single-member districts, and the resulting emphasis on local pork? If so, the pork-barrel orientations of the most educated of Brazil's voters are rational responses to the rules and social context of their electoral system. But we might then ask whether high levels of demand for local benefits explain the high turnover rates and the low seniority levels of southern congressional delegations.

What are the implications of spatial voting distributions for subsequent legislative behavior? We know that in systems of single-member districts, parliamentary or presidential, deputies seek the "personal vote" of constituents (Cain et *al.*, 1987). In the mixed German system, which allocates half its parliamentary seats by districts and half by closed-list proportional representation, district deputies are more constituency oriented than list deputies (Lancaster, 1990). But in these cases deputies may be responding to differing institutional incentives rather than electoral incentives. Bowler and Farrell (1993), however, found that in the European Parliament the links between delegates and constituents were systematically related to the differing electoral rules under which delegates were selected. In the Brazilian case deputies effectively represent a wide variety of constituencies, from dominated

[28] My findings have implications for other political contexts with similar rules, e.g., U.S. primary elections (both legislative and presidential) and at-large city council oontcsts. With the spread of geographic information systems, scholars should begin paying serious attention to these settings.

[29] The scandals of 1993 also revealed, however, that social assistance amendments are a clever way for deputies to transfer funds to their own families.

single-member districts, to scattered special-interest cohorts, to scattered deals, to intensive working-class districts. Do some kinds of districts insulate deputies from presidential demands? Are some deputies more oriented toward national legislation? Is corruption a natural outgrowth of certain kinds of constituencies? Thus the Brazilian case, a system allowing the formation of a wide variety of constituencies within a single institutional framework, is a perfect laboratory for the study of electoral influences on legislative behavior.

In April of 1993, Brazilian voters rejected a switch from presidentialism to parliamentarism. Though presidentialism prevailed, debate over the electoral system continues, and in 1994 the Congress began debating changes in the electoral rules. Of considerable interest is the German system. In theory, mixed systems increase the accountability of deputies to local communities, strengthen parties, and reduce the influence of money. Of course, much depends on the specific two-vote system adopted, but my findings encourage some observations. The first concerns pork barrel. Districts encourage pork. A formal district system in the Northeast, where current bailiwicks are much looser than in the South, would crootc some very large rural districts. Eventually political awareness might rise, but the immediate consequence would likely be stronger rural domination and even more attention to local pork barrel. A second observation involves parties. A closed-list PR rule will certainly strengthen parties. But if candidate nomination remains decentralized to the state level -- and anything else is inconceivable in Brazil -- it will be state parties, representing state interests, that gain strength.[30] Finally, what about campaign spending? If the PR side is closed-list, spending will surely drop. If the PR side is open-list, each candidate will actually spend more, but at least there will be fewer candidates. The district implications, however, are less clear. Candidates with purely local reputations will be able to avoid costly state-wide campaigns, but they mostly campaign locally under the current system anyway- At the same time, some candidates will be forced into districts larger than their current bailiwicks; hence they will spend more. Candidates with scattered vote distributions will have to campaign where they are unknown; thus they will spend more. Overall, the German system would probably reduce campaign spending, but the overall result is hard to predict.[31]

[30] Marcus Figueiredo (in a personal communication) suggests that thc Congress might adopt the German system with open-list PR!! See also Fleischer (1981).

[31] Japan uses a single non-transferable vote system in districts much smaller than Brazil's. Campaign expenditures are enormously higher than either Brazil or the U.S. See McCubbins and Rosenbluth, 1992, p. 13.

APPENDI X A: Amendments in Bahia

Poisson Regression
Log-likelihood= -1798.970
Restricted Log-L= -2468.222 LR statistic= 1339,
Chi- squared. = 14148.
G - squared = 2862.1

Variable	Coefficient	Std. Error	t-ratio	Prob|t|
Constant	-5-7735	0-3732	-15,470	0-000
Distance from municipal center	-2-8382	16.33	-0,174	0.862
Distance squared	76,781	192.2	o-399	0-685
Distance from personal center	-31.558	16.14	-1.955	0,050
Distance squared	232.28	182.9	1.270	0.204
Municipal dominance	13,677	0-7582	18.039	0-000
Dominance Squared	-14,168	l-504	-9-423	0.000
Concentration	.042894	-02368	l-811	0.070
Concentration * municipal distance	-3-8679	2.983	-1-297	o-194
Concentration * personal distance	4.6706	2.938	1.590	0.111
Percent of vote to retired deputies	0-44938	0.3305	1.360	0.173
Percent migrants	0.27586E-02	0.3452E-03	7-992	0.000
InterParty fragmentation	l-3038	0-3882.	3.359	0-000
Intraparty fragmentation	0-75625	0-2447	3.091	0.002
Match to core: Migrants	-0.11839E-01	0.3085E-02	-3.838	0-000
Match to core: Income distribution	-0.98579E-01	0.4525E-01	-2-178	0-029
Match to core: Government employees	-53.954	14.44	-3.736	0.000
Match to core: Population	0.15669E-05	0.4187E-06	3.742	0.000
Rank in party list in 1986	0-8054 SE-01	0.4875E-02	16-523	0.000
Local career	-1.2890	0-5344	-2-412	0.015
Local career * municipal distance	153.71	44.22	3-476	0.000
Local career * personal distance	-150.78	40.19'	-3.752	0-000
Political family	0-25107	0-1875	l-339	0.180
Political family * municipal distance	-10.535	4.585	-2-298	0.021
PR				
SC				

APPENDIX A: Amendments in Northeast

Poisson Regression
Log-likelihood= -3020.167
Restricted Log-L= -3682-855 LR statistic= 1325.
Chi- squared = 0.12592E+06
G - squared = 4780.3

Variable	Coefficient	Std. Error	t-ratio	Prob|t
Constant	-4 -9564	0-2421	--20.476	0.00000
Distance from municipal center	-0.24340E-03	0.3478E-04	-6,999	0.00000
Distance squared	0.32069E-08	0.5387E-09	5.953	0.00000
Distance from personal center	0.39259E-03	0.3712E-04	10.576	0.00000
Distance Squared	-0.52710E-08	0.5740E-09	-9.184	0.00000
Municipal dominance	9.4776	0-5096	18,598	0.00000
Dominance Squared	-8.6524	0-9278	-9-326	0.00000
Concentration	-0.12916	0.2046	-0.631	0.52790
Concentration * municipal distance	0.20155E-02	0.2585E-03	7.797	0.00000
Concentration * personal distance	-0.12013E-02	0.2165E-02	-0.555	0.57901
Percent of vote to retired deputies	0.16038	0.4132E-01	3.881	0.00010
Percent migrants	-14.407	5.264	-2,737	0.00620
InterParty fragmentation	-0.10173E-05	0.3998E-06	-2,544	0.01096
Intraparty fragmentation	l-7800	0.3082	5,775	0.00000
Match to *core:* Migrants	l-2255	0-1862	6,581	0.00000
Match to core: Income distribution	0.28728E-01	0.8350E-02	3.441	0.00058
Match to-core: Government employees	0.14872	0.9151E-01	l-625	0.10414
Match to core: Population	-0.44873E-03	0.8845E-04	-5.073	0 . 00000
Rank in party list in 1986	0.28147E-03	0.7103E-04	3-963	0.00007
Local career	-0.18031	0.9199E-01	-1.960	0.04998
Local career * municipal distance	-0.23698E-05	0.5666E-05	-0,418	0-67578
Local career.* personal distance	0-11945	0.2201E-01	5.427	0.00000
Political family	0.93063E-05	0.1519E-04	0-613	0.54018
Political family * municipal distance	-0.14664E-04	0.1504E-04	-0.975	0.32956
PE	-0.41566	0-1820	-2.264	0-02237
PI	0-53381	0-1464	3.645	0.00027
PB	-0.65867	0.1368	-4.817	0.00000
RN	-0.78642E-01	0-1602	-0.491	0.62348

APPENDIX A: Amendments in Minas Gerais

Poisson Regression
Log-likelihood= −2918.546
Restricted Log-L= -4176,539 LR statistic= 2516,
Chi- squared = 0.32696E+06
G - squared = 4829.0

Variable	Coefficient	Std. Error	t-ratio	Prob|t| ×
Constant	-3.2962	0.2863	-11.511	0. 00000
Distance from municipal center	-51.350	26.49	-1.938	U-05258
Distance squared	-79.830	209.4	-0.381	0.70306
Distance from personal center .	47.692	25.98	1.836	o-06638
Distance squared	15,665	216-2	0-072	o-94223
Municipal dominance	11-271	0.4492	25,092	0.00000
Dominance Squared	-9.5737	0-6265	-15.282	0 . 00000
Concentration	-0.28770E-01	0-1434	-0.201	o-84101
Concentration * municipal distance	0.12863E-03	0.2445E-03	0.526	0-59882
Concentration * personal distance	0.12693E-01	0.1671E-02	7.595	0 . 00000
Percent of vote to retired'deputies	-0-12398	0.1335E-01	-9.288	0. 00000
Percent migrants	-53-858	9.139	-5,893	0. 00000
InterParty fragmentation	-0.50692E-05	0.7605E-06	-6.666	0 . 00000
Intraparty fragmentation	-0.77529	0.1973	-3.929	0~00009
Match to core: Migrants	0-26816	0.1535	1.747	0 . 08059
Match to core: Income distribution	0.26626E-01	0.2064E-02	12.900	0 . 00000
Match to core: Government employees	0.91505	0.1540	5.942	0 . 00000
Match to core: Population	84,287	23-14	3,642	0-00027'
Rank in party list in 1986	-101.14	23.23	-4.353	0.00001
Local career	-- 0.33346E-01	0.1608	0,207	0-83568
Local career * municipal. distance	2.3713	4-464	0,531	0-59530
Local career * personal distance	0.75880E-03	0.1796E-01	0.042	0-96631
Political family	5.7579	Z-397	2.403	o-01628
Political family * municipal distance	-6.6019	2.433	-2.713	0-00666

APPENDIX A: Amendments in Rio de Janeiro

Poisson Regression
Log-likelihood= -588.9223
Restricted Log-L= -851.7236 LR statistic= 525-6
Chi- squared = 4059. 1
G - squared = 882.47

Variable	Coefficient	Std. Error	t-ratio	Prob|t|>x
Constant	-6-3164	1.002	-6.303	0 . 00000
Distance from municipal center	32-197	39-56	0.814	0-41572
Distance squared	-206.89	863.9	-0-240	0-81072
Distance from personal center	-169.76	35-45	-4-788	0.00000
Distance squared	2132.7	787.9	2-707	0.00680
Municipal dominance	10. 695	2.122	5.041	0 . 00000
Dominance Squared	-13.609	5-379	-2-530	0.01141
Concentration	1.6118	0.7023	2.295	0.02172
Concentration * municipal distance	-0.28544E-02	0.6658E-03	-4.287	0-00002
Concentration * personal distance	-0.12044E-01	0.5207E-02	-2-3x3.	0.02072
Percent of vote to retired deputies	0.67306E-02	0.1441E-01	0.467	0-64035
Percent migrants	-37.652	11.75	-3.205	0.00135
InterParty fragmentation	0.10514E-05	0.4563E-06	2.304	0-02121
Intraparty fragmentation	7.8591	I-121	7.008	0-00000
Match to core: Migrants	-0.10323	0-3200	-0.323	0-74701
Match to core: Income distribution	0.23813E-01	0.6377E-02	3.734	0.00019
Match to core: Government employees	1.0766	0-2790	3 . 859	0.00011
Match to core: Population	-123.79	36.87	-3-357	0.00079
Rank in party list in 1986	80.875	32.58	2-482	0.01305
Local career	1.0840	0.3755	2-887	0.00389
Local career * municipal distance	-19.958	29.77	-0.670	0.50262
Local career * personal distance	0.56736E-01	0.6217E-01	0.913	0.36145
Political family	10.558	5.599	1.886	0.05934
Political family * municipal distance	-7.1408	5.046	1.415	0.15702

APPENDIX As Amendments in Sao Paulo

Poisson Regression
Log-likelihood= -1392,007
Restricted Log-L= -1942.213 LR statistic= 1100.
Chi- squared = 33156.
G - squared = 2328.2

Variable	Coefficient	Std. Error	t:-ratio	Prob|t|·x
Constant	-4.8649	0-6147	-7.914	0.00000
Distance from municipal center	-7.7181	22-79	-0.339	0.73489
Distance squared	-209 . 08	203.6	-1,027	0-30434
Distance from personal center	41.558	20.30	2,048	0-04060
Distance squared	-115.45	177.7	-0.650	0.51589
Municipal-dominance	14.445	l-029	14.041	0 . 00000
Dominance Squared	-14.913	1.955	-7.627	0 . 00000
Concentration	-0.65540	0-4198	-1,561	0-11846
Concentration * municipal distance	0.13397E-02	0.4456E-03	3,006	0-00264
concentration * personal distance	0.20992E-02	0.2855E-02	0,735	0-46212
Percent of vote to retired deputies	-0.18170	0.1269E-01	-14,316	0 . 00000
Percent migrants	33,511	11.23	2,984	0-00285
InterParty fragmentation	0.12447E-05	0.3869E-06	3.218	0.00129
Intraparty fragmentation	0.12319E-02	0.5065E-03	2,432	0-01502
Match to core: Migrants	0.86590E-03	0.3230E-03	2,681	0-00734
Match to core: Income distribution	0.10021E-01	0.4461E-02	2,246	O-02470
Match to core: Government employees	f-6035	0-2547	6,296	0. 00000
Match to core: Population	-19.101	12.21	-1.565	0.11762
Rank in party list in 1986	13.209	10.74	l-230	0-21884
Local career	-0.87882E-01	0.1962E-01	-4,480	0.00001
Local career * municipal distance	6.4950	l-597	4.067	0.00005
Local career * personal distance	-8-9641	l-513	-5,925.	0 . 00000
Political family	----	-----	------	-------
Political family * municipal distance	----	-----	------	-------

APPENDIX A: Amendments in South

Poisson Regression
Log-likelihood= -3794 . 214
Restricted Log-L= -4935.885 LR statistic= 2283.
Chi- squared = 24013,
G - squared = 6013.9

Variable	Coefficient	Std. Error	t-ratio	Prob|t|x
Constant	-3.6021	0-3503	-10,284	0. 00000
Distance from municipal center	52-392	18-92	2.770	0.00561
Distance squared	-78-712	202.1	-0,389	0. 69698
Distance from personal center	-42-238	18.86	-2,240	0-02511
Distance squared	84-131	193-8	0.434	0-66414
Municipal dominance	10,295	o-4294	23.975	0.00000
Dominance Squared	-10,313	0.6551	-15.743	0 100000
Concentration	-0.45461	0.1297	-3.505	0-00046
Concentration * municipal distance	0.10998E-02	0.1773E-03	6.204	0. 00000
Concentration * personal distance	-0.58246E-02	0.1155E-02	-5.043	0 . 00000
Percent of vote to retired deputies	0.46936E-02	0.1218E-01	0.385	0. 69994
Percent migrants	-6.8290	5.066	-1,348	0-17763
InterParty fragmentation	-0.18412E-06	0.2072E-06	-0.889	0-37421
Intraparty fragmentation	0.13614E-02	0.4164E-03	3.270	0-00108
Match to core: Migrants	-0.60300E-03	o-20923-03	-2,882	0-00395
Match to core: Income distribution	0.41907E-01	0.3797E-02	11.038	0 . 00000
Match to core; Government employees	-0.74929	0.1335	-5,613	0.00000
Match to core: Population,	159.07	20.71	7,682	0 . 00000
Rank in party list in 1986	-159.75	20.31	-7,865	0 . 00000
Local career	-0.31394	0.3993	-0,786	0-43178
Local career * municipal distance	-23,873. . .	15.18	-1,572	0-11585
Local career * personal distance	0.46104E-01	0.1055E-01	4,368	0.00001
Political family	0.24453	'l-328	0-184	0-85391
Political family * municipal distanc	-2-4209	1,362	-1,777	0-07555
PR	0-96991	'O-2808	3.454	0-00055
SC	0-56075	o-2929	1.914	0.05558

APPENDIX B: Electoral Outcomes in Bahia

Source	DF	sum of Squares	Mean Square	F Value	Pr > F
Model	23	4.5073E+13	1.9597E+12	431.35	0.0001
Error	8016	3.6418E+13	4.5432E+09		
Corrected Total	8039	8.1491E+13			

R-Square	C.V.	Root MSE	VOTE90 Mean
0.553105	320.3915	67403.0	21037.7

Parameter	Estimate	T for HO: Parameter=0	Pr > |T|	Std Error of Estimate
Intercept	111889.5730	15.03	0.0001	7442.31222
Vote in 1986	27.4769	48.87	0.0001	0.56227
--State-level-dominance in 1986	-6496.1037	-0.94	0.3461	6894.54835
Concentration in 1986	315.2014	0.74	0.4572	423.96090
Amendments by deputy (logged)	15250.8075	22.38	0.0001	681.47520
Amendments . municipal dominance	10756.0009	3.18	0.0015	3381.28250
Municipal dominance in 1986	158128.4200	4.45	0.0001	35559.83019
Municipal dominance-squared	-47081.3557	-0.81	0.4184	58183.96488
Amendments by other deputies	-703.1941	-4.30	0.0001	163.62785
Interparty fragmentation in 1986	-2192.3532	-0.35	0.7296	6343.15972
Intraparty fragmentation in 1986	-5409.1331	-1.28	0.1993	4213.93215
Rank in Party List in 1986	-166.5195	-2.02	0.0413	81.58814
Match to Core: Population 7	-0.0021	-0.30	0.7611	0.00700
Match to Coro: Income Distribution	-549.8169	-0.73	0.4675	756.76851
Match to Core: Government Employees	-140126.9408	-0.55	0.5208	253745.45072
Distance from personal center.	-125239.7066	-0.97	0.3305	128704.66015
Distance from municipal. center.	107652.7123	0.78	0.5336	137267.19472
Partisan-affinity gain from 1986	0.0195	18.52	0.0001	0.00305
PFL-PDS candidate	12305.9157	6.04	0.0001	2038.97892
Partisan opposition gain from 1986	0.0159	11.15	0.0001	0.00143
PMDB or left candidate in 1986	10145.4217	4.67	0.0001	2172.19771
Local career	-508.7084	-0.19	0.8521	2727.55268
Political family	-3618.8248	-0.94	0.3493	3866.57177
Political family . municipal distance	20957.1549	0.29	0.7705	71826.13145

APPENDIX B: Electoral Outcomes in the Northeast

sou rce	DF	Sun of Squares	I·lean Square	F Value	Pr > F
Model	28	2.0034E+14	7.1550E+12	294.70	0.0001
Error	6267	1.5216E+14	2.4279E+10		
Corrected Total	6295	3.5250E+14			

R-Square	C.V.	Root MSE	VOTE90 Mean
0.568347	329.4210	155817	47300.2

Parameter	Estimate	T for HO: Parameter=0	Pr > |T|	Std Error of Estimate
Intercept	82238.099	S-82	0.0001	14118.57688
Vote in 1986	55.420	67.34	0.0001	O-82304
State-level dominance in 1986	70010.344	4.34	0.0001	16133.88048
Concentration in 1986	-1598.454	-1.31	O-1889-	1216.47875
Amendments by deputy (logged)	12172,760	9-68	0,0001	1257.64734
Amendments • municipal dominance	X3600-419	2.55	O-0109	5341.58095
Municipal dominance in 1986	-316267,207	-5.56	0.0001	5692%02023
Municipal dominance squared	270666,738	3-29	0.0010	82315.70872
Amendments by other deputies	-1166.801	-3.55	0.0004	328.99907
Interparty fragmentation in 1986	-74.22G	-1.06	0.2895	70.07396
Intraparty fragmentation in 1986	-13.676	-0.37	0.7139	37.30189
Rank in Party List in 1986	-5.684	-0.01.	0.9902	460.97046
Match to core: -Population	0,037	2.53	0.0114	0.01463
Match to Core: Income Distribution	-281.924	-0.63	0.5278	446.50287
natch co core: Government Employees	-1238743.006	-3.84	0.0001	322426.23410
Distance 'from personal center	-0.616	-0.55	0.5852	l-12770
Distance from municipal center	0.620	0.52	0 • 6002	1. 18380
Partisan affinity gain from 1986	0.015	4.29	O-0001	O-00361
PFL-PDS candidate	3025. 397	0.51	O-6086	5908.11713
Partisan opposition gain from 1966	0.003	1.09	0.2741	O-00229
PMDB or left candidate in 1986	20387.908	3.87	0.0001	5392.04555
Local career	-4565.057	-0.91	O-3610	4997.15302
Political family	14227.227	2.60	0.0093	5470.38050
Political family • municipal distance	-0.309	-0.82	0.4126	0.37691
AL	26647.795	0.71	0.4760	37381.14605
PE	-4540.760	-0.45	0.6529	10094.95401
PI	29501 e49	J-16	0.0016	9326.05576
PB	-1974. 776	-0-22	O-8283	9105.42919
RN	45104.710	4.10	0.0001	10998.78568

APPENDIX B: Electoral Outcomes in Minas Gerais

Source	DF	Sum of Squares	Mean Square	F value	Pr >
Model	23	9.5776E+13	4,1642E+12	875.26	0.00'
Error	19654	9.3506E+13	4.7576E+09		
Corrected Total	19677	1.8928E+14			

R-Square	C.V.	Root MSE	VOTE30 Mea
0.505994	601.3685	68975.S	11269.

Parameter	Estimate	T for HO: Parameter=0	Pr > |T|	Std Error of Estimate
Intercept	84383.6739	17.97	0.0001	4695.13248
Vote in 1986	22.5653	88.68	0.0001	0.25446
State-level dominance in 1986	-1353.7961	-0 32	0.7463	4184.60783
Concentration In 1986	378.3555	3.24	0.0012	116.68315
Amendments by deputy (logged)	13311.3235	22.08	0.0001	6 0 2 .77603
Amendments -*--municipal dominance	15070.8622	8.30	0.0001	1815.64969
Municipal dominance in 1986	133748.8656	6.83	0.0001	19587.53942
Municipal dominance squared	-146632.1722	-6.53	0.0001	22438.05490
Amendnents by other deputies	-388 .7166	-3.62	0.0003	107.29367
Interparty fragmentation in 1986	2417.2571	o-91	0.3615	2648.98652
Intraparty fragmentation in 1966	-11046.6122	-5.16	0.0001	2142.39068
Rank in Party List in 1986	64.4544	2.19	0.0285	29.41543
Match to Core: Population	-0.0043	-1.79	O-0741	0.00240
Match to Core: Income Distribution	270.0639	0.98	O-3260	274.94805
Match to core: Government Employees	-27796.2992	-0.55	0.5842	50788.13604
Distance from personal center	-196956.5845	-1.80	0.0714	109245.24665
Distance from municipal center	143890.8020	1.34	0-1789	107034.97950
Partisan affinity gain from 1986	-0.0073	-5.43	0.0001	0.00134
PFL-PDS candidate	14436.9728	6.72	0.0001	2146.87749
Partisan opposition gain from 1986	0.0326	<2.13	0.0001	0.00077
PMDB or left candidate in 1986	10215.8220	6.74	0.0001	1515.83544
Local career	-128 .4117	-0.10	O-9198	1275.99648
Political family	9678.3185	3-63	0.0003	2668 .49796
Political family * municipal distance	-98408.5068	-1.96	0.0505	50318.63430

APPENDIX B: Electoral Outcomes in Rio de Janeiro

Source	DF	Sum of Squares	Mean Square	F value	Pr
Model	22	7.7592E+14	3.5269E+13	87-73	0.0
Error	1961	7.8839E+14	4.0203E+11		
Corrected Total	1983	1.5643E+15			

R-Square	'C-V-	Root MSE	VOTE90 Mc
0.496016	483.3467	634062	1311

Parameter	Estimate	T for HO: Parameter=0	Pr > |T|	Std Error of Estimate
Intercept	-71308.236	-0.51	0-6107	140067.577
Vote in 1986	17-321	18.39	0.0001	0.942
State-level dominance in 1986	967051.237	2.83	0.0048	342196-846
Concentration in 1986	-2380.104	-0.25	0.8005	9418.553
Amendments by deputy (logged)	4977.767	0.47	0.6386	10595.906
Amendments * municipal dominance	783331.902	5.30	0.0001	147757.954
Municipal dominance in 1986	6849825.159	4.78	0. 0001	1433649.185
Municipal dominance squared	-6313729.057	-1.99	0.0463	3166120,058
Amendments by other deputies	1885,888	0.65	0.5155	2899.419
Interparty fragmentation in 1986	-68223,003	-0.51	0.6075	132815.349
Intraparty fragmentation in 1986	105091.513	1.38	0.1678	76167,753
Rank in Party List in 1986	432.507	0-33.	0-7523	1373.867
Match to Core: Population	-0.007	-0.38	0.7052	0.019
Hatch to Core: Income Distribution	2181.913	0.56	0.5755	3895.994
Match to Core: Government Employees	1131978.067	0.51	0-6102	2220347,949
Distance from personal center.	-1178349,702	-0.44	0.6572	2654760,388
Distance from municipal center	-0.019	-7.76	0.0001	0-002
Partisan affinity gain from -1986	18599.339	0.46	0.6461	40504.469
PFL-PDS candidate	0.035	9.03	0.0001	0.004
Partisan opposition gain from 1986	-10377.219	-0.28	0-7813	37378.165
PMDB or left'candidate in 1986	36142.964	0.88	0-3771	40914.599
Local career:	141551.364	1.39	0.1656	102045.641
Political family	-9519702.954	-1.83	0-0681	5215013.732
Political family . municipal distance				

APPENDIX B: Electoral Outcomes in Sao Paulo

Source	DF	Sum of Squares	Mean Square	F Value	Pr > i
Model	23	9.6969E+14	4.2160E+13	213 -28	0.0003
Error	20496	4.0516E+15	1.9768E+11		
Corrected Total	20519	5.0213E+15			

R-Square	C.V.	Root MSE	VOTE90 Mean
0.193115	1967.652	444610	22596.0

Parameter	Estimate	T for HO: Parameter=0	Pr > |T|	Std Error of Estimate
Intercept	31247.295	0.69	0.4882	45080.125
Vote *in* 1986	2.510	4.90	0.0001	0.512
State-level dominance in 1986	-35892.987	-0.58	0.5640	62211.479
Concentration in 1986	-200.764	-0.24	O-8124	845.889
Amendments by deputy (logged)	-164.341	-0.03	0.9756	5376.863
Amendments . municipal dominance	150739.794	4.99	0.0001	30217.990
Municipal dominance in 1986.	1049859.407	4.07	0.0001	258200,058
Municipal dominance squared	48342,587	0.14	0.8864	338360.810
Amendments by other deputies	-330.635	-0.26	0.7928	1258. 776
Interparty. fragmentation in 1986	12 , 007	0.46	O-6436.	25,946
Intraparty fragmentation in 1986	-12.319	-0.79	0.4286	15.561
Rank in Party List in 1986	-341.314	-1.54	0.1236	221.660
Hatch to Core: Population	-0,002	-0.98	0.3272	0.002
Hatch to Core:.: *Income Distribution*	-138.588	-0.14	0. 8907	1008.792
Match to Core: Government Employees	-964093.650	-1.26	0.2083	766137,474
Distance from personal *center*	165060.349	0.72	0.4710	228964.23 1
Distance from municipal *center*	-507967,759	-1-81	0-0709	281232.944
Partisan affinity gain from 1986	-0 , 009	-6.26	0.0001	0-001
PFL-PDS candidate	20976 , 663	2.26	0.0241	9299 . 680
Partisan opposition gain from 1986	0.040	47-11	0.0001	0-001
PMDB or left candidate in 1986	18279. S74	2.33	0.0200	7857.801
Local career	1905.479	0.24	O-8090	7883.134
Political family	2232.785	0.04	0-9624.	50088 .261
Political family . municipal distance	101484.391	0.07	0.94 18	1390337.391

APPENDIX B: Electoral Outcomes'in the South

Source	DF	Sum of Squares	Mean Square	F Value	Pr >
Model	25	1.5105E+14	6.0420E+12	463.39	0.000:
Error	9171	1.1958E+14	1.3039E+10		
Corrected Total	9196	2.7063E+14			

R-Square	C.V.	Root MSE	VOTE90 Mear
0-558146	653.1937	114188	17481.9

Parameter	Estimate	T for HO: Parameter=0	Pr > |T|	Std Error of Estimate
Intercept	16576-9716	1.26	0.2071	13140.30653
Vote in 1986	34-2657	86.25	0.0001	0.39727
State-level dominance in 1986	74649.3693	3.23	0.0013	23141.39880
Concentration in 1986	-20.8400	-0.05	0.9591	406.05401
Amendments by deputy (logged)	3508.2110	4.32	0.0001	812.46920
-Amendments . municipal dominance	-11942.5041	-2.77	0.0056	4311.57330
Municipal dominance in 1986	-111527.4781	-2.30	0-0217	48590.32461
nunicipql dominance squared	-361959.5451	-4.76	0.0001	76081.05973
Amendments by other deputies	-1255.9371	-7.20	0.0001	174.40671
Interparty fragmentation in 1986	11.6870	0-81	0.4202	14.49802
Intraparty fragmentation in 1986	-20.2326	-2.42	0.0155	8.36048
Rank in Party List in 1986	211.1943	1.19	0.2357	178.09440
Match to Core: Population	-0.0146	-1.69	0.0907	0-00864
Hatch to Core: Income Distribution	209 .9795	0.41	0.6837	515.40703
Hatch to Core: Government Employees	148906.8213	0.86	0.3919	173902.34417
Distance from personal center	-50942.3871	-0.17	0.8620	293076.76960
Distance from municipal center	29702.5421	0.10	0.9208	298767.31391
Partisan affinity gain fron 1986	-0.0286	-4.58	0.0001	0-00623
PFL-PDS candidate	8550.0172	1.91	0.0568	4487.69644
Partisan opposition gain from 1986	0-0273	23.07	0.0001	0.00118
PMDB or left candidate in 1986	1087.9528	0.37	0.7105	2930.63294
Local career	-1615.4783	-0.55	0.5801	2919.91008
Political family	33195.8191	2.64	0.0084	12586.77760
Political family . municipal distance	-819418.0415	-3.20	0.0014	256128.12851
PR	369.2343	0.04	0.9706	10030.61831
SC	8913.9402	0.84	0.4011	10614.55890

APPENDIX C: Data: Sources and Problems

The map and Moran's I. The computerized maps were constructed with large state road maps, a digitizing table, and Autocad. To facilitate data location, I generally placed the capital of each municipality at its center. The distortions this creates are minor. The GIS also includes, in addition to the results of the 1978-90 elections, data from the 1980 census, all budgetary amendments offered for the 1989, 1990, and 1991 budgets, and the results of the presidential election of 1989. The nearest-neighbor matrices used in the calculation of Moran's I are derived from the map coordinates. Paul Sampson of the University of Washington provided the program creating these matrices. For an introduction to spatial analysis, see Cliff, *et al.,* (1 *975).*

State mapping is hindered by the politically motivated tendency for municipalities to subdivide. Since the census data are based on 1980 borders, new municipalities must be reaggregated into old ones. In some cases the number of new units was so great that reaggregation distorted political events. In other cases the creation of whole new states compromised the old state. As a result, the analysis excludes Goiás, Tocantins, Mato Grosso, Mato Grosso do Sul, Acre, Amapá, Rondônia and Roraima. Much of the Center-West is lost; the northern states have hardly any population, although malapportionment gives them considerable political force.:

Budgetary amendments. Each year the Joint Commission on the Budget publishes reproductions of all the amendments deputies and senators offer (Brasii. Congresso Nacional, 1988-I 990). Members submit these amendments on small cards, roughly 2" by 6", and the published volumes reproduce these cards, many of them hand written. Each card contains the name and state of the deputy or senator, the program modified, the municipality benefitted, the amount of money, and the program debited to finance the amendment. I coded all amendments made by deputies in 1990 and 1991. In 1992 I coded only a sample of the 72,672 amendments. This paper does not utilize the 1992 group, because members of the new Chamber, those entering in 1991, made them. The analysis also excludes the roughly 1% of amendments benefitting no particular municipality. Thanks to Orlando de Assis for help in obtaining the 1991 amendments. Carmen Perez also provided an enormous help in this area.

The electoral results. For 1978 and 1982, the electoral results come from PRODASEN, the data processing arm of the Senate. Thanks to Jalles and William for help. I-or 1986, the Tribunal Superior Eleitoral provided some data, but eight states never sent election results to Brasilia. I copied results at the regional tribunals in these states. Thanks to Denise Levy and her father in Paraná. For 1990 the Tribunal Superior, with the assistance of Roberto Siqueira, Sérgio, Flávio Antonio, Conceição and Nelson, supplied data on diskette for fifteen states. Manuel Caetano in Porto Alegre helped with the *gaúcho* results-

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